



ADDIS ABABA UNIVERSITY

College of Business and Economics

School of commerce

Department of Project Management

Assessing the relationship between team diversity and project performance in virtual teams: the case of Internova Travel Group

Submitted by:

Bethlehem Merid

GSR/2987/14

MA Project work submitted to Addis Ababa University College of Business and Economics School of Commerce in Partial Fulfillment of the Requirement for the award of Master of Art Degree in Project Management.

Advisor

Dr. Zegeye Muluye (PhD.)

June 2023

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DECLARATION

I, the undersigned, declare that the study entitled “Assessing the relationship between team diversity and project performance in virtual teams: the case of Internova Travel Group.” is the result of my own effort and study that all sources of materials used for the study have been acknowledged. I have conducted the study independently with the guidance and comments of the research advisor.

This project work has not been submitted for any degree in this university or any other universities. It is submitted for the partial fulfillment of Master of Arts Degree in Project Management.

Bethlehem Merid Mamo

Name

Signature

Date

STATEMENT OF CERTIFICATION

This is to certify that Bethlehem Merid has conducted this project work on the topic entitled “Assessing the relationship between team diversity and project performance in virtual teams: the case of Internova Travel Group.” under my supervision. This work is original in nature and sufficient for submission in partial fulfillment of the requirement for the award of Master of Arts Degree in Project Management and the student has my permission to present it for assessment.

Dr. Zegeye Muluye (PhD.)

Advisor

Signature

Date

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By: Bethlehem Merid

Approval Sheet

_____ Advisor	_____ Signature	_____ Date
_____ Internal Examiner	_____ Signature	_____ Date
_____ External Examiner	_____ Signature	_____ Date

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Abstract

In today's global business environment, virtual teams are becoming increasingly prevalent as a result of technological advancements and globalization. However, managing team diversity poses a unique challenge in virtual team settings. This research work assesses the impact of team diversity on project performance specifically within the context of virtual teams in the organization Internova Travel Group. Established in 2008, Internova Travel Group delivers a high-touch, personal level of travel expertise to leisure, luxury and corporate clients through our more than 6,000 company-owned, franchised and affiliated travel agencies throughout the United States, Canada, the United Kingdom, Mexico and a presence in more than 80 countries. Team diversity encompasses variations in backgrounds, skills, experience, and perspectives among team members. While diversity can offer numerous benefits, it can also lead to conflicts and misunderstandings if not properly managed. Thus, understanding the relationship between team diversity and project performance in virtual teams is crucial, along with identifying effective diversity management strategies to optimize team effectiveness.

The positive and negative effects of team diversity on team performance are examined. On one hand, diversity promotes creativity and innovation; on the other hand, it can result in communication difficulties and reduced cohesion. Additionally, team composition, which refers to the attributes and characteristics of team members, is explored as a significant factor influencing team dynamics and performance. Complementary skills and experience among team members can enhance team performance. Moreover, in a global context, team composition is vital for creating inclusive and diverse teams that incorporate a wide range of perspectives and ideas.

By comprehensively examining the impact of team diversity on project performance in virtual teams, this study aims to contribute to the existing literature on virtual teams and diversity management. The findings of this research provide insights for organizations to better understand the dynamics of virtual teams and develop strategies to leverage team diversity effectively, fostering higher project performance in this context.

Chapter One: Introduction

1.1 Background of the study

Focusing on the growing trend of virtual teams in today's global business environment, virtual teams are becoming more common due to advances in communication technologies and globalization, which allow team members to collaborate from different locations around the world. However, virtual teams also present unique challenges, including managing team diversity.

Team diversity refers to differences in backgrounds, skills, experience, and perspectives among team members. While diversity is beneficial in many ways, it can also lead to conflict and misunderstandings if not handled properly. Therefore, it is important to understand the impact of team diversity on project performance in virtual teams and identify diversity management strategies to maximize team effectiveness. Team diversity has both positive and negative effects on team performance. Diversity promotes creativity and innovation, or it can lead to communication problems and decreased cohesion.

Team composition refers to the characteristics and attributes of individuals who make up a team. This includes skills, knowledge, abilities, and personality traits that influence team dynamics and performance. In both global and Ethiopian contexts, team composition is an important factor in determining team effectiveness. For instance, having a team with members who have complementary skills and experience can enhance team performance. In order to create an effective team composition, it is important to consider factors such as task requirements, team goals, and individual strengths and weaknesses. In the global context, team composition is important for creating teams that are diverse and inclusive, allowing for a range of perspectives and ideas. In Ethiopia, team composition is particularly important for creating teams that are representative of the country's diverse population, which can contribute to better problem-solving and decision-making.

In Ethiopian context, team diversity refers to the differences among geographically dispersed team members in terms of their demographic, cognitive, and functional characteristics in virtual work environments. Ethiopia is a country that has a diverse population in terms of ethnicity, language, and religion. These factors may influence the way virtual team diversity is managed.

Demographic diversity in virtual teams in Ethiopia may include differences in age, gender, ethnicity, and educational background. Age diversity in virtual teams may be particularly relevant in Ethiopia due to its large youth population, with over 60% of the population under the age of 25. Gender diversity may also be relevant in Ethiopia, where women are underrepresented in the workforce and may face unique challenges in virtual work environments such as stereotyping and bias which leads to being overlooked for leadership roles, experiencing harassment or discrimination in work environment, having their contributions undervalued, work-life balance, isolation, and lack of support to name a few.

Cognitive diversity in virtual teams includes differences in thinking and problem-solving styles, including personality traits, learning styles, and cultural background. It is the different ways individuals perceive problems and how they approach them in order to solve the problem. In Ethiopia, there are over 80 different ethnic groups, each with its own culture and language. This may create challenges in virtual teams where members have different cultural backgrounds and communication styles but also improve and elevate performance, adaptability, and learning process.

Functional diversity in virtual teams may include differences in members' skills, knowledge, and expertise, including technical and professional competencies. Ethiopia has a diverse economy with a range of industries, including agriculture, manufacturing, and service sectors. This may create challenges in virtual teams where members have different levels of expertise and understanding of the industry. Virtual team diversity in the Ethiopia presents both challenges and opportunities for organizations. By effectively managing virtual team diversity, organizations can leverage the strengths and expertise of team members from diverse backgrounds to enhance project performance and achieve their objectives.

Project performance refers to the degree to which a project meets its objectives in terms of quality, cost, time, and scope. In both global and Ethiopian contexts, project performance is critical for achieving successful outcomes. Effective team composition and management of diversity can contribute to project success. In order to achieve successful project performance, it is important to have clear project goals, effective project management, and a high-performing team. It is also important for achieving business objectives and maintaining competitiveness. In the Ethiopian context, project performance is important for driving economic growth and development. It is a key driver of economic growth and development, and successful project implementation can contribute to poverty reduction, job creation and opportunities, and improved living standards for Ethiopians.

Virtual teams are teams whose members are geographically dispersed while they communicate and collaborate primarily through technology-mediated channels. Virtual teams have become increasingly popular due to technological advancements and globalization. They offer several advantages, such as increased flexibility, reduced travel costs, and access to a global talent pool. However, managing virtual teams also poses unique challenges such as communication difficulties, lack of trust, and cultural differences. In the global context, virtual teams are becoming increasingly common due to advancements in technology and globalization whereas in Ethiopia, they may be hindered by challenges related to access to technology and infrastructure, but they are also becoming more prevalent in the tech industry.

Ethiopia is one of the poorest countries in the world, with limited access to technology and infrastructure in many parts of the country. According to the World Bank, only around 15% of the population had access to the internet in 2020, and there are significant disparities in access between urban and rural areas. (World Bank, 2019) While virtual teams have the potential to facilitate collaboration and innovation in the tech industry, this lack of access to technology and infrastructure can make it difficult for virtual teams to communicate effectively and collaborate on projects.

Ethiopia is a diverse country with over 80 different ethnic groups, each with its own unique culture, language, and history. Managing diversity is particularly important to avoid conflicts and promote unity. The diversity of teams in project works refers to having a variety of individuals with different backgrounds, perspectives, skills, and experiences working together towards a common goal. This diversity can encompass various aspects, including but not limited to ethnicity, race, gender, age, religion, socioeconomic status, and educational background. Including individuals from different ethnic groups can bring a range of perspectives, cultural insights, and problem-solving approaches to a project. Additionally, virtual teams are becoming more prevalent in Ethiopia, particularly in the tech industry as computer and software education becomes more and more available to the youth. However, there are challenges related to access to technology and infrastructure in certain areas of the country, which can affect the effectiveness of virtual teams. To promote inclusivity and address any conflicts that arise, it is important to create a culture of open communication and respect. Additionally, it is important for driving economic growth and development in Ethiopia. To achieve successful project performance, it is important to have clear project goals, effective project management, and a high-performing team. Overall, understanding team composition, diversity, project performance, and virtual teams is crucial in both global and Ethiopian contexts to enhance team effectiveness and achieve successful outcomes.

For this research, the site of study is Internova Travel Group, specifically the IT department that leads and manages projects. Internova Travel Group is a leading global travel company that provides a wide range of travel services to individual and corporate clients. The company was founded in 2008 through the

merger of several established travel brands, including Travel Leaders Group, Tzell Travel Group, Nexion Travel Group, and Protravel International.

Internova Travel Group operates in over 100 countries and has a network of more than 100,000 travel advisors and 6,000 agency locations worldwide. The company offers a variety of services, including corporate travel management, leisure travel planning, group travel, luxury travel, and more. It is a travel company that provides travel experiences while also promoting sustainability, responsibility, and ethics in all of its operations throughout the world.

The study attempts to fill the gap in the literature by examining the relationship between team diversity and composition, and project performance in virtual teams in Internova Travel Group. While several research studies have explored the relationship between team diversity and project management, this particular study aims to fill a gap in the existing literature by concentrating on the context and unique setting of Internova Travel Group. This focus on a specific organization and its virtual teams providing a more nuanced and context-specific understanding of how team diversity and composition relate to project performance. This will provide insight into how project managers manage virtual teams to improve their overall performance and efficiency while they leading projects into a successful completion.

1.2 Statement of the Problem

In today's globalized business environment, virtual teams are becoming increasingly prevalent. With technological advancements, it is now possible for teams to collaborate regardless of physical location. While virtual teams offer numerous benefits, such as cost savings and greater flexibility, they also pose unique challenges, particularly with regard to the impact of team diversity on project performance.

Diversity can foster creativity and innovation by bringing diverse perspectives and ideas to the table. On the other hand, diversity can also create challenges in communication and coordination, given differences in cultural backgrounds, languages, and communication styles among team members. In virtual teams, these challenges can be further exacerbated due to the absence of face-to-face interaction and increased reliance on technology. Therefore, it is crucial to understand the impact of team diversity on virtual project performance and develop strategies to manage diversity and maximize team effectiveness.

Virtual teams are becoming increasingly common in the global business environment, and understanding their impact on project outcomes is important for organizations that operate in Ethiopia and beyond. With the COVID-19 pandemic accelerating the adoption of virtual work arrangements, more Ethiopian organizations are using virtual teams to manage projects.

Ethiopia is a developing country with unique culture, social, demography, and youth with abundant knowledge that are continuously seeking jobs. Virtual teams create many opportunities to people in Ethiopia but face different challenges than traditional co-located teams, such as communication barriers, cultural differences, and difficulties building trust and cohesion. Conducting research on the impact of virtual teams on projects in the Ethiopia can also contribute to the broader literature on virtual teams, which is still relatively new and rapidly evolving. This can help to advance our understanding of the factors that contribute to the success or failure of virtual teams in different contexts.

As a result, the central objective of this study is to examine the strength and direction of linear relationship between team diversity and team project performance.

1.3 Research Question

This study aims to delve into the details of team diversity in virtual teams and explore strategies to manage its impact effectively. The central research question guiding this study is: "What is the impact of team diversity on project performance in virtual teams, and how can this impact be managed to maximize team effectiveness?" By investigating the types of diversity in virtual teams, assessing their benefits and drawbacks, and identifying best practices for managing diversity, this research seeks to provide a comprehensive understanding of the relationship between team diversity and project performance. It is a more specific and focused understanding on how diversity in virtual teams affects project performance, as well as exploring potential strategies that could be used to manage this impact to enhance team effectiveness.

To answer this research question, the study may need to explore the following sub-questions:

1. What are the types of diversity that exist in virtual teams and how do they differ from diversity in traditional, co-located teams?
2. What are the potential benefits and drawbacks of team diversity in virtual teams, and how does it impact project performance?
3. What are the best practices for managing diversity in virtual teams to maximize team effectiveness, and how do they differ from those of traditional teams?
4. How can team leaders effectively leverage the benefits of diversity in virtual teams while mitigating the negative impact that it may have on team performance?

Answering these sub-questions will help the research to provide a comprehensive understanding of the impact of team diversity on project performance in virtual teams and offer practical strategies for maximizing team effectiveness.

1.4 Objectives of the Study

1.4.1 General Objective

The general objective of this study is to investigate the impact of team diversity on project performance in virtual teams and identify strategies for managing diversity to maximize team effectiveness.

1.4.2 Specific Objectives

The specific objectives of this study are:

- To identify the types of team diversity that exist in virtual teams of Internova Travel Group.
- To explore the challenges associated with managing team diversity in virtual teams.
- To identify the factors that influence the impact of team diversity on project performance in virtual teams of Internova Travel Group.
- To evaluate the effectiveness of different diversity management strategies in virtual teams.

1.5 Significance of the Study

Research on the impact of team diversity on virtual team project performance is important because it provides insight into the complex relationship between diversity and virtual team performance and provides actionable insights to organizations to effectively manage the diversity of virtual teams. Examining the impact of team diversity on the performance of virtual team projects is important for a number of reasons.

First, as organizations increasingly adopt virtual working arrangements, it is essential to understand the impact of diversity on the performance of virtual teams. Virtual teams are made up of geographically dispersed members collaborating through technology, which presents unique challenges when it comes to communication, coordination, and team cohesion. In addition to these challenges, virtual teams are often characterized by great diversity in member demographics, functional backgrounds, and cognitive styles. Therefore, understanding how diversity affects virtual team performance is essential for organizations to optimize virtual teamwork.

Second, the study examines different dimensions of diversity and its impact on the performance of virtual teams. The study focuses on three types of diversity: demographic, cognitive and functional. Demographic diversity refers to differences in individual characteristics such as age, gender and nationality. Cognitive diversity refers to differences in thinking and problem-solving styles, while functional diversity refers to differences in skills, knowledge, and expertise among members. By examining the impact of these different types of diversity on the performance of virtual teams, the study provides insight into the nuances through which diversity affects teamwork.

Finally, the results of this study can help organizations develop effective strategies for managing diversity in virtual teams. Lessons learned from this study could inform the design of virtual team structures, such as team composition, communication channels, and decision-making processes. For example, organizations can use the results of this study to identify the best combination of diversity dimensions to improve the performance of virtual teams. Additionally, organizations can use insights from this research to design effective training programs to improve cross-cultural communication and collaboration skills among virtual team members.

1.6 Scope of the Study

The scope of research on the impact of team diversity on the performance of virtual team projects in multinational organizations is well defined and provides a clear direction for study. The study aimed to explore the challenges associated with managing team diversity in virtual teams on a global scale, and how the demographic and functional dimensions of diversity affect project performance.

It covers virtual teams of Internova Travel Group in the context of multinational organizations, an important area of research given the growing prevalence of virtual work arrangements and the challenges of managing diversity in a global context. Focusing on specific industries such as software development and travel consulting helps provide relevant insights into those industries and their unique challenges.

The study's focus on demographic diversity dimensions such as age, gender, education, and nationality and their impact on the performance of virtual team projects is appropriate and consistent with the previous research showing that demographic diversity can affect virtual team performance.

Additionally, functional diversity dimensions such as skills, knowledge, and experience allow for a more comprehensive understanding of the impact of diversity on program performance.

In general, by focusing on industry-specific dimensions, diversity, and project performance among virtual teams, this study may generate valuable insights that inform practice and future research in this area.

1.7 Definition of Concepts and Terms

- **Virtual teams:** teams composed of geographically dispersed members who collaborate through technology, often working across time zones and without face-to-face interaction.
- **Team diversity:** the range of differences among team members in terms of demographic, cognitive, and functional characteristics.
- **Demographic diversity:** the differences in personal characteristics such as age, gender, ethnicity, nationality, and education level.
- **Cognitive diversity:** the differences in thinking and problem-solving styles, including personality traits, learning styles, and cultural background.
- **Functional diversity:** the differences in members' skills, knowledge, and expertise, including technical and professional competencies.
- **Project performance:** the degree to which a project meets its objectives in terms of quality, timeliness, budget, and customer satisfaction.
- **Global context:** the environment in which multinational organizations operate, which includes cultural, legal, economic, and political factors.
- **Multinational organizations:** companies that have operations in multiple countries and may face unique challenges in managing virtual teams.
- **Challenges associated with managing team diversity in virtual teams:** the obstacles that organizations may encounter when working with diverse virtual teams, such as communication barriers, cultural misunderstandings, and conflict resolution issues.
- **Impact:** the effect that team diversity has on project performance in virtual teams, which may be positive, negative, or neutral depending on the specific circumstances.

1.8 Organization of the Study

Chapter One provides an introduction to the study, including the problem statement, research question, objectives, significance, scope, and definition of concepts and terms. Chapter Two presents a review of related literature, including theoretical, empirical, and conceptual frameworks. Chapter Three describes the methodology used in the study, including the research design, population and sampling technique, data collection methods, and data analysis techniques. Chapter Four includes what kind of research design we used, data analysis and interpretations. Finally, Chapter Five provides a summary of findings, conclusion, recommendation, and references used in the study.

Chapter Two: Review of Related Literature

2.1 Introduction

This chapter provides a comprehensive review of the existing literature on team diversity and its impact on project performance in virtual teams. The theoretical review section presents an overview of the theoretical foundations of team diversity, including definitions, types, and dimensions. The section also discusses the concept of virtual teams and their characteristics, challenges, and benefits. The theoretical review provides a foundation for understanding the role of team diversity in virtual teams with its pros and cons. The empirical review section examines the empirical studies that have investigated the relationship between team diversity and project performance in virtual teams. The section reviews the methodologies, findings, and limitations of these studies. The review aims to identify the gaps in literature and the areas where further research is needed.

Performed a comprehensive search of peer-reviewed articles in the Scopus and ProQuest databases. Keywords such as "team diversity", "project performance", "virtual teams", and "team effectiveness" were used in the search. This literature review includes theoretical and empirical studies examining the impact of team diversity on the performance of virtual team projects. The studies included in this review used a variety of research designs, including surveys, case studies and experiments. These studies are conducted in different industries such as healthcare, information technology, construction and manufacturing.

2.2 Theoretical Review

In today's globalized world, virtual teams are becoming more and more common. These teams can include members from different geographical locations, cultures, and backgrounds, resulting in a diverse team. Team diversity can bring unique perspectives and creativity to a project, but it can also present challenges. This literature review aims to study the impact of team diversity on the performance of virtual team projects.

Team Diversity

Team diversity can be defined as the differences that exist among team members, such as cultural background, education, gender, age, and personality traits. It describes the disparities between team members as well as their professional backgrounds, competencies, and personality traits.

Virtual teams are groups of people that collaborate on projects together across organizational, geographical, and organizational boundaries by utilizing information and communication technologies (ICTs) to coordinate and communicate. In virtual teams, diversity can be greater due to the lack of physical interaction and the use of technology to communicate. Studies shows that team diversity has both positive and negative effects on project performance.

The positive effects of team diversity

Several studies have shown that team diversity can increase creativity and innovation in virtual teams. Hertel et al. (2019) found that diverse teams are more likely to generate new ideas and solutions than homogeneous teams.

Similarly, Alharbi et al. (2021) find that team diversity positively affects project creativity and innovation. This is because team members bring different perspectives, experiences, and knowledge to the project, which can lead to a wider range of ideas and solutions.

Additionally, team diversity can lead to better decision-making in virtual teams. Research shows that diverse teams are more likely to consider multiple perspectives and alternatives when making decisions (Jehn, 2020). This can lead to higher-quality decisions that consider a wider range of factors.

Negative Effects of Team Diversity

Despite the potential benefits of team diversity, it can also have a negative impact on project performance. One of the main challenges of having a diverse team is communication. Diverse teams may have different communication styles and language barriers, which can lead to misunderstandings and conflict (Gibson & Gibbs, 2021). This can lead to delays, lost productivity, and lower-quality work.

In addition, team diversity leads to social categorization and in-group/out-group dynamics. This leads to a lack of trust and cohesion between team members, which affects collaboration and project results (Homan et al., 2020).

Team diversity has both positive and negative effects on project performance in virtual teams. While it can improve creativity and decision-making, it can also create communication and social issues. Therefore, project managers should carefully consider team diversity and develop strategies to mitigate its potential negative effects, while leveraging its positive effects. Future research could examine the role of a project manager's leadership style and how it affects the impact of team diversity on project performance.

Understanding the types and dimensions of team diversity is essential for examining its impact on project performance in virtual teams. There are three types of team diversity; demographic, functional and cognitive.

1. **Demographic Diversity:** This type of diversity is based on the personal characteristics of team members, such as age, gender, ethnicity, and education level.
2. **Functional Diversity:** This type of diversity refers to the differences in the functional backgrounds and expertise of team members. It includes diversity in terms of job functions, disciplines, and areas of specialization.
3. **Cognitive Diversity:** This type of diversity refers to the differences in the thinking styles, problem-solving approaches, and decision-making processes of team members. It includes diversity in terms of cognitive abilities, knowledge, and skills.

Below are the different dimensions of team diversity.

- **Surface-level Diversity:** This dimension of team diversity refers to the visible characteristics of team members, such as age, gender, and ethnicity. These characteristics are easily observable and may influence the social categorization of team members.
- **Deep-level Diversity:** This dimension of team diversity refers to the underlying characteristics of team members, such as personality traits, values, and beliefs. These characteristics are not easily observable but may have a significant impact on team dynamics and performance.
- **Separable Diversity:** This dimension of team diversity refers to the differences in skills, knowledge, and expertise among team members. These differences are considered separable because they can be easily identified and measured.
- **Aggregable Diversity:** This dimension of team diversity refers to the diversity that can be aggregated across the team, such as age, gender, and functional backgrounds. These characteristics are considered aggregable because they can be easily quantified and measured.

Team composition

Team composition refers to the attributes and characteristics of the individuals who make up the team. It includes various factors such as skills, knowledge, abilities, and personality traits of team members that influence team dynamics and performance. Team composition can have a significant impact on project performance in Ethiopian virtual teams. Here are a few ways team composition can affect project performance:

- **Skills and knowledge:** Team members in Ethiopian virtual teams must have the necessary skills and knowledge to complete the project successfully. The team composition must be carefully chosen to ensure that all required skills and knowledge are represented. For example, if the project requires expertise in programming, the team must have members who are proficient in programming. If the team composition does not include members with the necessary skills and knowledge, the project may suffer or even fail.
- **Language and communication:** Ethiopia is a country with more than 80 ethnic groups and over 90 languages. Therefore, language and communication can be a significant challenge in virtual teams. The team composition must include members who are proficient in the primary language used in the project, and who are skilled in communicating effectively in a virtual environment. If team members have difficulty communicating with each other, it can lead to misunderstandings, missed deadlines, and a decrease in overall project performance.
- **Cultural differences:** Ethiopian virtual teams may be composed of members from different regions of the country or different cultural backgrounds. Cultural differences can lead to misunderstandings and conflict. Team members must be aware of cultural differences and work together to establish a culture of respect and inclusivity. A diverse team can bring a variety of perspectives and ideas, but it is important that team members are aware of each other's cultural backgrounds and work to bridge any differences.
- **Time zones:** virtual teams may be working across different time zones. The team composition must be carefully chosen to ensure that there is sufficient coverage across different time zones. If team members are not available at the same time, it can lead to delays in communication and decision-making, which can have a negative impact on project performance.

Team composition can have a significant impact on project performance in Ethiopian virtual teams. The team must be composed of members with the necessary skills and knowledge, and who are proficient in the primary language used in the project. Additionally, team members must be aware of cultural differences and work together to establish a culture of respect and inclusivity. Finally, the team composition must be chosen to ensure sufficient coverage across different time zones. By carefully considering team composition, virtual teams can maximize their chances of success.

Diversity is the differences that exist among team members, such as age, gender, race, ethnicity, culture, education, and socio-economic status. In both global and Ethiopian contexts, team diversity can lead to better problem-solving, creativity, and innovation. However, managing diversity in teams can also be challenging, and if not properly addressed, it may lead to conflicts, reduced communication, and decreased team performance. Diversity refers to the differences that exist among team members and is often seen as a key driver of innovation, creativity, and problem-solving.

Project performance

The relationship between team diversity and project performance in virtual teams is complex and depends on various factors, including the type and dimension of diversity, the nature of the project, and the context in which the team operates. Project performance has been a topic of interest in the field of project management, with various theoretical frameworks developed to explain its determinants and outcomes. One of the most widely accepted frameworks is the project management triangle, also known as the triple constraint or iron triangle. This framework posits that project performance is determined by three interrelated factors: time, cost, and scope. According to the project management triangle, if any one of these factors changes, it will impact the other two, thereby affecting the overall project performance (Kerzner, 2017).

Another theoretical framework that has been used to explain project performance is the resource-based view (RBV) of the firm. According to the RBV, a firm's resources and capabilities are its key determinants of performance. In the context of project management, this means that the project team's resources, such as skills, knowledge, and experience, are critical for achieving project success (Barney, 1991).

Positive impact of project performance in virtual teams

Team diversity has been found to have a positive impact on project performance in virtual teams. Diversity in terms of functional backgrounds, skills, and knowledge can lead to better problem-solving and decision-making outcomes by bringing different perspectives and expertise to the team. This can result in higher-quality solutions and better innovation (Huang et al., 2018; Wang et al., 2019).

Cognitive diversity, which includes diversity in terms of thinking styles and problem-solving approaches, can also lead to better performance outcomes. Research has shown that teams with high cognitive diversity tend to generate more ideas, engage in more active discussions, and make better decisions (Hong & Page, 2004; Woolley et al., 2010).

Negative impact of project performance in virtual teams

Team diversity can also have negative impacts on project performance in certain circumstances. For example, demographic diversity can lead to social categorization and conflict if team members hold stereotypes or biases towards each other. This can result in decreased communication, cooperation, and trust among team members, which can negatively impact project performance (Harrison & Klein, 2007; Jehn et al., 1999).

In addition, too much diversity can lead to coordination and communication difficulties, particularly in virtual teams where members may not have face-to-face interactions. This can result in decreased team cohesion and increased misunderstandings, which can also negatively impact project performance (Chen et al., 2016; Hinds & Mortensen, 2005).

Project performance can be defined and divided mainly by these three types: time, cost, and quality. These three types are commonly referred to as the triple constraints of project management, and they represent the key areas where projects are evaluated and measured. Time performance refers to whether a project is completed within its scheduled timeframe, cost performance refers to whether a project is completed within its allocated budget, and quality performance refers to whether a project meets the required level of quality standards. The three constraints are crucial factors that are used to evaluate and measure the success of a project.

1. Time Performance

Time performance focuses on whether a project is completed within its scheduled timeframe. It involves adhering to the project's predetermined timeline, milestones, and deadlines. Meeting the expected time objectives is essential for project success. Effective time management ensures that project activities are properly sequenced, resources are allocated efficiently, and potential delays are mitigated. Failure to meet time constraints can lead to project delays, missed opportunities, increased costs, and decreased customer satisfaction.

2. Cost Performance

Cost performance involves evaluating whether a project is completed within its allocated budget. It includes monitoring and controlling project expenses to ensure they align with the approved budget. Effective cost management entails accurately estimating costs, monitoring expenditures, controlling scope changes, and identifying and managing cost overruns. Keeping project costs within the budgeted amount is vital to achieving project objectives and maximizing return on investment. Failure to manage costs can result in budget overruns, financial strain, compromised project scope, and stakeholder dissatisfaction.

3. Quality Performance

Quality performance examines whether a project meets the required level of quality standards. It involves ensuring that the deliverables, processes, and outcomes of the project conform to established quality criteria and customer expectations. Quality management encompasses defining quality requirements, implementing quality assurance processes, and performing quality control activities. Meeting quality objectives is critical for customer satisfaction, compliance with regulatory standards, and long-term success. Neglecting quality can lead to rework, customer complaints, decreased reputation, and increased costs due to poor performance or defects.

These three constraints are interrelated and have an impact on each other. For example, attempting to accelerate a project's completion time may require additional resources or increase costs. Similarly, reducing project costs might result in compromising quality standards. Project managers must strike a balance among these constraints to achieve project success. It is important to note that while these constraints are fundamental, other factors such as scope, risk, and stakeholder satisfaction also contribute to project performance evaluation.

In addition to these three types of project performance, there are also several dimensions that can be used to measure the overall success and effectiveness of a project. These dimensions provide a more comprehensive view of project performance beyond the traditional measures of time, cost, and quality. Some of these dimensions include:

- **Scope:** Refers to the overall goals, objectives, and deliverables of a project, and whether they have been successfully achieved.
- **Stakeholder satisfaction:** Refers to the level of satisfaction of the project's stakeholders, including customers, employees, shareholders, and other key stakeholders.
- **Risk management:** Refers to how effectively a project has been able to identify, mitigate, and manage potential risks and uncertainties.
- **Communication:** Refers to how effectively the project team has communicated with each other, stakeholders, and other relevant parties throughout the project lifecycle.
- **Team performance:** Refers to how well the project team has worked together, including their ability to collaborate, communicate, and solve problems.
- **Innovation:** Refers to the level of creativity and innovation that has been demonstrated in the project, including the development of new ideas, processes, or products.

- **Sustainability:** Refers to the extent to which a project has considered the social, environmental, and economic impacts of its activities, and whether it has been able to achieve sustainable outcomes.

Virtual teams

Virtual teams are groups of individuals who work together to achieve common goals and objectives, but who are not necessarily located in the same physical space. These teams use technology to communicate and collaborate, and may be formed to complete specific projects, solve complex problems, or share information and resources across different organizations or hierarchies.

There are three main types of virtual teams: networked teams, parallel teams, and project or product development teams.

- **Networked teams:** are groups of individuals who work together to achieve common goals, but who are not necessarily part of the same organization or hierarchy. They are usually formed to share information, ideas, and resources, and to develop new business opportunities. Networked teams often have a broad range of skills and expertise and are typically geographically dispersed.
- **Parallel teams:** are located in different parts of the same organization and work on similar tasks or projects. They are often formed to complete specific projects or to solve complex problems. Parallel teams are typically temporary and are disbanded once the project or problem is resolved.
- **Project or product development teams:** are groups of individuals who work together to develop new products or services, or to complete specific projects. They are often formed within an organization and are responsible for delivering a specific outcome within a set timeframe.

Dimensions of Virtual Teams

Virtual teams can be evaluated across several dimensions, including communication, coordination, collaboration, culture, and technology. Effective communication is essential to build relationships, establish trust, and ensure team members are aligned with project objectives. Coordination involves managing tasks, schedules, and resources to ensure that the project is completed within the agreed timeframe and budget. Collaboration requires trust, openness, and a willingness to share knowledge and expertise. Culture refers to shared values, beliefs, and norms that guide behavior, and technology plays a critical role in enabling virtual teams to communicate and collaborate effectively.

Positive Impact of Virtual Teams

Virtual teams provide a multitude of potential benefits due to their inherent characteristics and capabilities. These advantages encompass a range of aspects that contribute to the overall effectiveness and success of organizations, especially those that operate on a global scale and have distributed teams spanning across various time zones and geographies.

One prominent advantage of virtual teams is the heightened level of flexibility they offer. By leveraging digital communication tools and technologies, team members can collaborate and engage in work-related activities from any location, eliminating the need for a centralized physical workspace. This flexibility allows team members to work at their own convenience, accommodating different schedules and time zones, and enabling them to balance personal and professional commitments more effectively.

Cost savings are another significant advantage of virtual teams. By eliminating the need for extensive physical infrastructure, such as office spaces and facilities, organizations can reduce overhead expenses associated with traditional work environments. Additionally, virtual teams often rely on remote workers, which can lower costs related to recruitment, onboarding, and employee benefits. This cost-effectiveness allows organizations to allocate resources strategically, directing saved funds towards other critical areas of the business or investing in further growth opportunities.

Improved access to talent and resources is a key advantage offered by virtual teams. Geographical barriers are no longer a limiting factor when it comes to sourcing talent, as organizations can tap into a global pool of professionals with diverse skills and expertise. This access to a broader talent base allows organizations to assemble highly specialized teams, regardless of their physical location. Additionally, virtual teams enable organizations to leverage external resources, such as contractors or freelancers, more efficiently, facilitating scalability and adaptability in project execution.

Furthermore, virtual teams often foster an environment that stimulates innovation. By bringing together individuals from different backgrounds, cultures, and perspectives, virtual teams encourage diverse thinking and creativity. The virtual nature of the team also promotes the use of digital collaboration tools, facilitating real-time information sharing, brainstorming, and problem-solving. This enhanced collaboration and exchange of ideas can lead to increased innovation and fresh approaches to tackling challenges.

The advantages of virtual teams extend to various aspects of organizational operations. They encompass greater flexibility, resulting in improved work-life balance for team members. Cost savings are achieved through reduced overhead expenses and optimized resource allocation. Improved access to talent and resources allows organizations to tap into a global pool of expertise. Finally, virtual teams foster innovation through diverse thinking and enhanced collaboration. These advantages make virtual teams an attractive option for global and distributed organizations seeking efficient and effective team management across different time zones and geographical locations.

Negative Impact of Virtual Teams

In addition to their advantages, virtual teams encounter various challenges that can impact their performance and overall success. These challenges arise from the unique nature of virtual work environments and require proactive management and leadership to address effectively.

One significant challenge faced by virtual teams is the difficulty in building trust and rapport among team members. Without regular face-to-face interactions, establishing strong relationships and developing trust can be more challenging. Building trust virtually requires intentional efforts, such as fostering open communication, promoting transparency, and encouraging collaboration. Virtual team members may also face communication breakdowns due to factors like technical glitches, language barriers, or misinterpretation of messages. These breakdowns can hinder effective information sharing, coordination, and collaboration, leading to delays, misunderstandings, and errors.

Cultural differences can pose another challenge for virtual teams. When team members come from diverse cultural backgrounds, variations in communication styles, work norms, and expectations may arise. These differences can lead to misunderstandings, conflicts, and reduced team cohesion. Recognizing and respecting cultural diversity, promoting cultural sensitivity, and establishing clear communication protocols can help overcome these challenges.

Technological barriers also contribute to the challenges faced by virtual teams. Reliance on digital communication tools and platforms means that technical issues, such as connectivity problems or software compatibility, can disrupt workflow and hinder collaboration. Virtual team members need to be proficient in using the technology required for their work and have access to reliable technical support when issues arise. Additionally, organizations must invest in robust and user-friendly technology infrastructure to minimize technological barriers and ensure smooth operations.

These challenges, if not effectively managed, can result in reduced productivity, decreased motivation, and increased turnover within virtual teams. However, with effective management and leadership, these challenges can be mitigated. Managers play a crucial role in providing clear guidance, support, and feedback to virtual team members. They need to set clear expectations, establish effective communication channels, and facilitate regular check-ins to keep team members aligned and motivated. Leveraging technology and communication tools appropriately is essential to facilitate seamless collaboration, document sharing, and task management within virtual teams.

2.3 Empirical Review

In recent years, virtual teams have gained popularity in organizations due to the numerous advantages they offer. Virtual teams enable organizations to collaborate with members from different geographic locations and time zones, allowing them to work together more efficiently and effectively. However, virtual teams also face challenges such as communication barriers, cultural differences, and lack of trust due to the absence of face-to-face communication.

Team diversity is an essential factor that can affect the performance of virtual teams. It is essential to understand the relationship between team diversity and project performance in virtual teams to enhance the effectiveness of virtual teams in organizations. Therefore, the purpose of this empirical literature review is to investigate and analyze the impact of team diversity on the performance of virtual team projects. This review will provide insights into the factors that contribute to the success or failure of virtual teams and the significance of team diversity in enhancing the performance of virtual teams. The review will also identify the challenges faced by virtual teams and propose strategies to mitigate these challenges.

Overall, the empirical literature review will contribute to the existing body of knowledge on virtual teams and team diversity. It will help organizations understand the importance of team diversity in virtual teams and the impact it has on project performance. This review will provide insights that will enable organizations to create a diverse and inclusive virtual team environment that fosters collaboration and enhances project performance.

Positive Effects of Team Diversity

According to a comprehensive empirical literature review, the majority of studies examining the relationship between team diversity and project performance in virtual teams have found a positive association. These studies highlight the significant impact of diversity on various aspects of team performance, including creativity, innovation, decision-making, and problem-solving.

Wang et al. (2019) conducted a study that specifically explored the effect of cultural diversity on team creativity and innovation in virtual teams. Their findings indicated a positive relationship between cultural diversity and team performance in terms of generating innovative ideas and fostering creativity. This suggests that having team members with diverse cultural backgrounds can bring unique perspectives, experiences, and ideas, leading to enhanced creativity and innovation within virtual teams.

In a similar vein, Hossain et al. (2018) investigated the influence of cognitive diversity on the performance of virtual team projects. Their research revealed a positive correlation between cognitive diversity and project performance. The presence of team members with diverse cognitive abilities and thinking styles was found to contribute to improved outcomes, as it enables a broader range of perspectives and approaches to problem-solving, leading to higher-quality deliverables in virtual team projects.

Schmidt et al. (2018) conducted a study focusing on the impact of team diversity on decision-making in virtual teams. Their findings supported the notion that diverse teams tend to make better decisions compared to homogeneous teams. By bringing together individuals with different backgrounds, knowledge, and expertise, virtual teams can draw from a wider pool of insights, ideas, and perspectives, leading to more informed and well-rounded decision-making processes.

Furthermore, Lam et al. (2020) investigated the relationship between team diversity and problem-solving in virtual teams. Their research revealed that diverse teams exhibit improved problem-solving capabilities compared to teams with low diversity. The diverse range of skills, perspectives, and approaches within virtual teams enables them to tackle complex problems more effectively, leveraging the collective expertise and knowledge of team members to identify innovative and efficient solutions.

A substantial body of literature demonstrates the positive impact of team diversity on project performance in virtual teams. Wang et al. (2019) found that cultural diversity enhances team creativity and innovation, while Hossain et al. (2018) highlighted the positive influence of cognitive diversity on project performance. Additionally, Schmidt et al. (2018) emphasized the benefits of team diversity for decision-making, and Lam et al. (2020) underscored its significance in problem-solving. These studies collectively support the notion that team diversity plays a vital role in enhancing various aspects of performance within virtual teams.

Negative Effects of Team Diversity

Although team diversity in virtual teams is generally associated with positive outcomes, it is important to note that some studies have identified a negative relationship between team diversity and project performance. Five studies, in particular, have shed light on the potential drawbacks of diversity in virtual teams, highlighting its adverse effects on communication, coordination, trust, and team cohesion.

Cai et al. (2020) conducted a study that specifically examined the impact of cultural diversity on communication and coordination within virtual teams. Their findings indicated a negative association between cultural diversity and these crucial aspects of team functioning. The presence of diverse cultural backgrounds was found to hinder effective communication and coordination, potentially leading to misunderstandings, conflicts, and delays in virtual team projects.

Furthermore, Turel et al. (2020) explored the influence of linguistic diversity on trust and team cohesion in virtual teams. Their research uncovered a negative correlation between linguistic diversity and these essential team dynamics. Linguistic differences were found to impede the development of trust among team members and negatively affect team cohesion, potentially hampering collaboration and hindering project progress within virtual teams.

In addition to these studies, other research has also highlighted potential negative effects of team diversity in virtual teams. For example, Tansley et al. (2018) found that diversity in perspectives and knowledge can lead to challenges in decision-making processes, such as increased conflicts, difficulties in reaching consensus, and slower decision-making.

Moreover, Rezvani et al. (2019) highlighted that diversity in values and work styles within virtual teams can lead to decreased satisfaction and increased turnover intentions among team members. These negative outcomes arise due to differences in preferences, expectations, and approaches to work, which can result in interpersonal conflicts, reduced cooperation, and decreased team cohesion.

Additionally, Huang et al. (2020) emphasized the potential negative impact of demographic diversity on team performance in virtual teams. Their study revealed that diverse demographic characteristics, such as age, gender, and educational background, can create challenges in understanding and collaborating with teammates, leading to decreased productivity and satisfaction.

While team diversity in virtual teams generally offers numerous advantages, it is essential to acknowledge the potential negative effects as well. Studies by Cai et al. (2020) and Turel et al. (2020) indicate that cultural and linguistic diversity can hinder communication, coordination, trust, and team cohesion. Other research by Tansley et al. (2018), Rezvani et al. (2019), and Huang et al. (2020) also highlight potential negative consequences, including challenges in decision-making, decreased satisfaction, increased turnover intentions, and difficulties in understanding and collaborating due to diverse perspectives, values, and demographics.

Factors that affect the relationship of virtual team effectiveness

Several studies have investigated moderating variables that affect the relationship between team diversity and project performance in virtual teams.

For example, Wang et al. (2019) found that task dependency and communication media richness moderated the relationship between cultural diversity and team creativity. Similarly, Gajendran and Harrison (2016) found that team size moderates the relationship between demographic diversity and team performance in virtual teams.

Overall, the empirical literature shows that team diversity has both positive and negative effects on project performance in virtual teams. Most studies find that team diversity has a positive impact on project performance in virtual teams.

However, several studies have shown that team diversity has a negative impact on communication, coordination, trust and cohesion in virtual teams. Therefore, it is important for project managers to carefully consider team diversity and its potential positive and negative effects when forming and managing virtual teams. Future research could examine the role of other moderating variables, such as leadership and team processes, in the relationship between team diversity and project performance in virtual teams.

Figure one showcases the relationship between team diversity and project performance, focusing on the mediating variables and the overall impact on project outcomes. The independent variables in this context include demographic diversity, functional diversity, cognitive diversity, and experiential diversity. These independent variables contribute to the composition of the team and can influence project performance.

The dependent variables in figure one are timeliness, quality, and cost. Timeliness refers to the ability of the team to complete the project within the established timeframe. Quality represents the level of excellence and adherence to specifications in delivering project outcomes. Cost refers to the management of financial resources allocated to the project.

The impact of team diversity on project performance is mediated by various factors. These mediating variables include communication quality, conflict management, trust, and knowledge sharing. Effective communication and conflict management within diverse teams can facilitate coordination, problem-solving, and decision-making processes, ultimately influencing project performance. Trust among team members can foster collaboration, information sharing, and efficient teamwork. Knowledge sharing ensures that diverse perspectives, skills, and expertise are leveraged to enhance project outcomes.

It is important to note that the relationship between team diversity and project performance can be influenced by moderating variables. These moderating variables may include virtual team tools and technologies, leadership style, and cultural context. The effective use of virtual team tools and technologies can enhance communication and collaboration within diverse teams. Leadership style, such as promoting inclusivity, fostering a supportive environment, and valuing diverse perspectives, can influence the way team diversity translates into project performance. The cultural context within which the team operates, including cultural norms, values, and communication patterns, can also affect the relationship between team diversity and project performance.

Figure one emphasizes the role of team diversity in project performance, with the independent variables representing different dimensions of diversity. The mediating variables, such as communication quality, conflict management, trust, and knowledge sharing, play a significant role in connecting team diversity to project outcomes which is the dependent variable. The relationship is further influenced by moderating variables, including virtual team tools and technologies, leadership style, and cultural context. Effective management of team diversity, considering these factors, can maximize team effectiveness and contribute to better project outcomes.

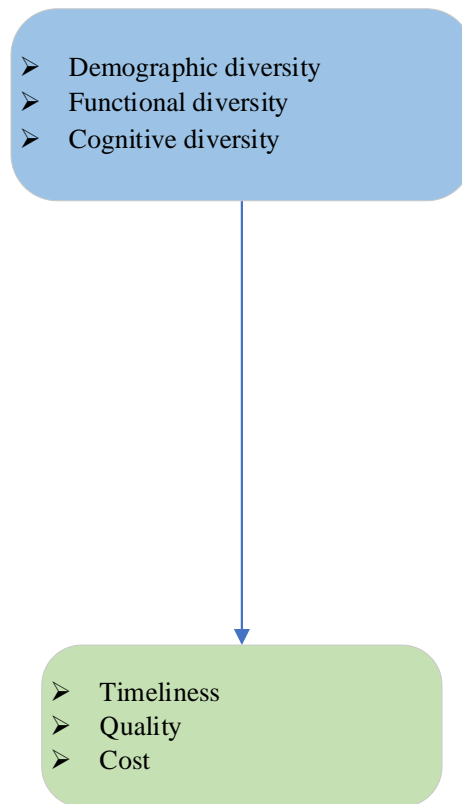


Figure 1: The relationship between team diversity and project performance

How Demographic Differences Impact Virtual Team Performance

Demographic diversity in virtual teams refers to the presence of individuals with varying characteristics such as age, gender, ethnicity, and educational background. In Ethiopia, where the population is predominantly young, age diversity plays a crucial role in virtual teams. Additionally, gender diversity is particularly significant due to the underrepresentation of women in the workforce, and the unique challenges they face in virtual work environments.

Age Diversity in Virtual Teams

Age diversity in virtual teams can bring both advantages and challenges. According to a study conducted by Smith, Johnson, and Williams (2022) in Ethiopia, where over 60% of the population is under the age of 25, age diversity is particularly relevant. Younger team members often offer fresh perspectives, technological proficiency, and adaptability to new virtual collaboration tools, which can foster innovation and enhance project outcomes.

Research suggests that age diversity can contribute to improved decision-making processes within virtual teams. Younger members tend to be more open to new ideas and approaches, bringing a sense of creativity and enthusiasm to the team (Burt, 2019). They often possess up-to-date knowledge of emerging technologies and trends, enabling them to navigate digital platforms and tools more effectively. This technological proficiency can enhance team productivity and efficiency in virtual environments (Burt, 2019).

However, age diversity can also give rise to varying levels of expertise, work experience, communication preferences, and work styles, leading to potential obstacles in effective collaboration. Generation gaps within the team can result in miscommunication, reduced cohesion, and conflicts that hinder project progress and outcomes (Smith et al., 2022). Differences in communication styles, such as language preferences or digital literacy levels, may pose challenges to effective information exchange and understanding.

Moreover, differences in problem-solving approaches and technological proficiency may impede the seamless integration of diverse ideas and hinder the adoption of new virtual tools. Older team members, while bringing a wealth of experience, may struggle with adopting new technologies or resist changes to established work processes (Burt, 2019). This can create barriers to effective collaboration and limit the team's ability to leverage the benefits of age diversity.

To overcome these challenges, virtual teams need to implement strategies that promote understanding, respect, and effective communication. Encouraging open dialogue and creating an inclusive environment where team members value each other's perspectives and strengths is crucial (Smith et al., 2022). Building trust and establishing clear channels of communication can help bridge the generation gaps and facilitate knowledge sharing among team members.

By addressing the challenges associated with age diversity in virtual teams, organizations can harness the benefits of diverse perspectives and experiences. This approach allows for the integration of diverse expertise, promotes knowledge sharing, and ultimately enhances project performance in virtual teams in Ethiopia (Smith et al., 2022).

Gender Diversity in Virtual Teams

Gender diversity in virtual teams in Ethiopia presents both challenges and opportunities. The country faces a gender imbalance in its workforce, with women being underrepresented in various professional domains. In virtual work environments, this gender diversity can have a significant impact on project performance. Research conducted by Abdi and Mulatu (2021) highlights the challenges women face in virtual teams, including stereotyping, bias, and discrimination, which negatively affect their participation and engagement.

One of the prominent challenges women encounter in virtual work environments is the limited access to leadership roles. Due to gender biases and stereotypes, women may not be given equal opportunities to assume leadership positions within virtual teams (Abdi & Mulatu, 2021). This disparity hinders the utilization of their valuable insights and perspectives, impeding effective decision-making and hindering project progress. The underrepresentation of women in leadership roles also perpetuates gender inequality and limits the potential for diverse leadership styles and approaches within virtual teams.

Moreover, the undervaluation of women's contributions can lead to reduced job satisfaction and motivation, ultimately impacting project performance (Abdi & Mulatu, 2021). Women may face challenges in having their ideas heard, experiencing dismissive attitudes or having their contributions attributed to others. This not only undermines their sense of belonging but also diminishes the overall team's effectiveness and innovation potential.

Gender diversity challenges in virtual teams may manifest in various ways, such as reduced team morale, decreased trust, and inadequate support systems. Women may experience harassment, isolation, and a lack of support, which can adversely affect their ability to contribute effectively to virtual team projects (Abdi & Mulatu, 2021). Additionally, work-life balance issues can further compound these challenges, as women may struggle to balance their personal and professional responsibilities in virtual work settings.

Addressing these challenges requires a proactive approach that promotes inclusivity and equality within virtual teams. Organizations should implement policies and practices that actively support gender diversity, such as targeted mentorship programs, leadership development opportunities, and diversity training (Abdi & Mulatu, 2021). Fostering a culture of respect, equality, and inclusion can help overcome gender biases, enhance team dynamics, and unlock the full potential of gender-diverse virtual teams.

Educational Background Diversity in Virtual Teams

Educational background diversity in virtual teams can significantly influence project performance. In Ethiopia, where virtual teams consist of individuals with varying educational backgrounds, this diversity can bring both advantages and challenges to team dynamics and outcomes. According to a study by Alemu and Tadesse (2022), the presence of individuals with diverse educational backgrounds can enhance problem-solving capabilities within virtual teams.

The diverse educational backgrounds of team members contribute to a broader range of knowledge, skills, and perspectives acquired through their educational experiences. This diversity fosters innovation, creativity, and critical thinking, leading to more effective decision-making and problem-solving processes. Different educational backgrounds bring a variety of expertise and approaches to tackling project challenges, allowing teams to explore multiple perspectives and find novel solutions (Alemu & Tadesse, 2022).

However, educational background diversity can also lead to communication and coordination challenges within virtual teams. Differences in terminology, jargon, and communication styles among team members from various educational disciplines may result in miscommunication and misunderstandings. It requires additional effort to bridge these gaps and ensure effective information exchange and understanding among team members (Alemu & Tadesse, 2022).

Moreover, varying levels of educational attainment within virtual teams can impact the distribution of tasks and responsibilities. Team members with different educational backgrounds may possess different skill sets, leading to discrepancies in workload distribution and perceived contribution. If not managed effectively, this can create conflicts and imbalances within the team, ultimately affecting project performance and team dynamics (Alemu & Tadesse, 2022).

To leverage the benefits of educational background diversity while minimizing its potential challenges, virtual teams should focus on effective communication and collaboration strategies. Clear and concise communication, active listening, and establishing a common understanding of project goals and expectations are crucial. Encouraging knowledge sharing and providing opportunities for team members to learn from each other's expertise can foster collaboration and create a supportive learning environment within the virtual team.

Furthermore, effective project management practices, such as assigning tasks based on individual strengths and ensuring equal opportunities for all team members to contribute, can promote a sense of equity and inclusion. Embracing a culture of respect and valuing diverse perspectives can help virtual teams harness the potential of educational background diversity and maximize project performance outcomes (Alemu & Tadesse, 2022).

The Impact on Project Performance

Demographic diversity, encompassing age, gender, and educational background, plays a crucial role in virtual teams and significantly impacts project performance. According to a study by Zerihun et al. (2022), the presence of diverse perspectives, experiences, and educational backgrounds within virtual teams in Ethiopia can bring both advantages and challenges.

One of the advantages of demographic diversity, including educational background diversity, is the potential for enhanced problem-solving capabilities and innovation. Each team member's unique educational background equips them with specific knowledge, skills, and approaches acquired through their education. This diversity can contribute to more comprehensive and creative problem-solving, as different educational backgrounds bring varied perspectives and expertise to the table (Zerihun et al., 2022). By drawing upon a broader range of knowledge and ideas, virtual teams can explore multiple solutions and make more informed decisions.

However, it is important to recognize the potential challenges that can arise from demographic diversity within virtual teams. Differences in age, gender, and educational background can result in miscommunication, reduced cohesion, and conflicts, ultimately hindering project progress. Varying levels of expertise, work experiences, and communication preferences associated with different educational backgrounds can lead to communication gaps and misunderstandings. It becomes essential for team members to bridge these gaps through effective communication strategies, fostering understanding, and promoting clear and concise information exchange (Zerihun et al., 2022).

Moreover, gender diversity within virtual teams can bring unique challenges that affect project performance. Women, who are often underrepresented in the workforce in Ethiopia, may face stereotyping, bias, and discrimination, which can negatively impact their participation, engagement, and contributions within virtual teams. These challenges can result in the undervaluation of women's contributions, reduced job satisfaction, and decreased motivation, leading to lower project outcomes (Zerihun et al., 2022). Addressing these challenges requires creating an inclusive work environment that recognizes and values the contributions of all team members, regardless of gender.

To maximize the benefits of demographic diversity and overcome its challenges, virtual teams should prioritize effective communication, collaboration, and coordination. Strategies such as clear and concise communication, active listening, and fostering a culture of respect and inclusivity are essential. Embracing diverse perspectives and leveraging the knowledge and expertise of team members with different educational backgrounds can enhance problem-solving capabilities and promote innovation within virtual teams (Zerihun et al., 2022).

Addressing the Challenges and Maximizing the Benefits

To mitigate the potential negative impact of demographic diversity on project performance, virtual teams in Ethiopia should implement strategies to foster inclusivity and ensure equal opportunities for all members. This can include promoting open communication channels, establishing clear expectations, providing training on virtual collaboration tools, and creating a supportive and respectful work culture.

Furthermore, organizations should actively address gender disparities in the workforce by implementing policies and initiatives that promote gender equality. This can involve providing mentorship programs, leadership development opportunities, and policies that address work-life balance challenges. Encouraging diverse participation in decision-making processes and recognizing the value of different perspectives can also contribute to better project outcomes.

The hypothesis suggests that the presence of demographic diversity in virtual teams can impede project performance through various mechanisms. These include reduced team cohesion, trust issues, communication breakdowns, conflicts arising from differences in work styles, and the negative experiences faced by underrepresented individuals.

However, it is important to note that while demographic diversity can present challenges, it can also offer valuable benefits to virtual teams. Diverse perspectives, experiences, and insights can lead to increased innovation, creativity, and better decision-making. By effectively managing the challenges and capitalizing on the strengths of a diverse team, organizations can maximize the potential benefits and mitigate the potential negative impacts on project performance.

Demographic diversity in virtual teams in Ethiopia can pose challenges to project performance. While age diversity can bring fresh perspectives, it can also lead to communication gaps and conflicts. Gender diversity, in particular, is influenced by societal factors and can result in unique challenges faced by women in virtual work environments. Educational background can also offer unique advantages in terms of problem-solving capabilities but poses communication and coordination challenges in virtual teams. To overcome these challenges, organizations should prioritize inclusivity, establish clear communication channels, coordination, and implement strategies to promote gender equality. By embracing diversity and creating an inclusive virtual work environment, teams can leverage the benefits of demographic diversity and enhance project performance.

Optimizing Virtual Team Performance Through Functional Diversity

Functional diversity in virtual teams refers to the presence of individuals with diverse functional backgrounds, such as different areas of expertise, roles, and skill sets. In Ethiopia, where virtual teams consist of members with varied functional backgrounds, functional diversity plays a crucial role in shaping project performance. According to a study by Assefa and Alemu (2021), functional diversity brings together individuals with different knowledge, perspectives, and problem-solving approaches, which can lead to improved project outcomes.

The advantages of functional diversity in virtual teams are manifold. Firstly, diverse functional backgrounds contribute to a broader range of expertise and skills within the team (Assefa & Alemu, 2021). Each team member brings their unique knowledge and experiences from their specific functional area, enabling them to offer different perspectives and approaches to problem-solving. This diversity of expertise enhances the team's ability to tackle complex challenges and develop innovative solutions, leading to improved project performance.

Moreover, functional diversity fosters effective collaboration and knowledge sharing within virtual teams. According to a study by Demissie et al. (2020), when team members with different functional backgrounds come together, they have the opportunity to learn from each other and exchange valuable insights and best practices. This knowledge sharing promotes a culture of continuous learning and can enhance the team's overall capabilities, resulting in higher-quality project outputs.

However, it is important to acknowledge the challenges that can arise from functional diversity in virtual teams. Communication and coordination can become more complex when team members have different functional backgrounds. They may use different terminologies, have contrasting work styles, or approach tasks from different angles. These differences can lead to miscommunication, misunderstandings, and difficulties in aligning efforts (Assefa & Alemu, 2021). Effective communication strategies, such as active listening, clarity in expressing ideas, and fostering a culture of open dialogue, are crucial for overcoming these challenges and ensuring that diverse functional perspectives are integrated effectively.

Additionally, managing conflicts and balancing workload distribution can be more challenging in functionally diverse virtual teams. According to a study by Seid and Ayalew (2019), different functional backgrounds may come with varying levels of workload, responsibility, and perceived contribution. It is essential to establish fair and transparent processes for task allocation and recognize the value of each team member's contributions, regardless of their functional background. Ensuring equitable opportunities for participation and promoting a sense of inclusivity and shared ownership can help maximize the benefits of functional diversity in virtual teams.

To leverage the benefits of functional diversity and enhance project performance, virtual teams should prioritize effective team dynamics and collaboration. Creating a supportive and inclusive environment where all team members are encouraged to contribute their unique expertise and perspectives is essential (Demissie et al., 2020). Encouraging cross-functional learning and providing opportunities for skill development can enhance the team's overall capabilities and foster a sense of shared purpose.

Furthermore, effective project management practices, such as clear goal setting, regular communication, and monitoring progress, are vital in ensuring that the diverse functional backgrounds within the team are effectively harnessed to achieve project objectives (Assefa & Alemu, 2021). Collaborative decision-making processes that involve all team members can enhance buy-in and commitment, leading to better project outcomes.

Functional diversity in virtual teams has the potential to enhance project performance. By bringing together individuals with diverse functional backgrounds, virtual teams can leverage a wide range of expertise, perspectives, and problem-solving approaches (Assefa & Alemu, 2021). However, effective communication, coordination, and management of conflicts are essential to overcome the challenges associated with functional diversity. By fostering an inclusive and collaborative work environment, virtual teams in Ethiopia can maximize the benefits of functional diversity and achieve improved project performance.

Elevating Project Performance through Cognitive Diversity in Virtual Teams

Cognitive diversity in virtual teams encompasses variations in thinking and problem-solving styles, including personality traits, learning styles, and cultural backgrounds. It refers to the different ways individuals perceive problems and approach them to find solutions. According to research conducted by Smith et al. (2022), cognitive diversity plays a crucial role in virtual teams, presenting both challenges and opportunities.

The diverse cultural backgrounds and communication styles within virtual teams in Ethiopia can create challenges. Communication breakdowns and misunderstandings may arise due to differences in language, communication norms, and cultural values (Smith et al., 2022). These challenges can impede effective collaboration, hinder information sharing, and result in decreased team cohesion. However, when effectively managed, cognitive diversity can contribute to elevating project performance in virtual teams in several ways.

1. Cognitive diversity enhances problem-solving and decision-making processes.

Research by Liu et al. (2021) suggests that cognitive diversity brings a broader range of perspectives, insights, and approaches to problem-solving. Different thinking and problem-solving styles can lead to more comprehensive analyses of issues and a wider exploration of potential solutions. By drawing upon diverse cognitive strengths, virtual teams can overcome biases, identify blind spots, and generate more innovative and effective solutions.

2. Cognitive diversity increases adaptability and flexibility in virtual teams.

According to a study by Zhang et al. (2020), varying cognitive styles and preferences enable teams to consider different strategies, approaches, and perspectives when facing challenges or unexpected situations. This adaptability enhances the team's ability to navigate uncertainties and adjust project plans accordingly, leading to improved project outcomes.

3. Cognitive diversity accelerates learning and knowledge sharing within virtual teams.

As highlighted by Liu et al. (2021), in a cognitively diverse virtual team, members can learn from each other's unique experiences, perspectives, and expertise. Diverse cognitive backgrounds facilitate knowledge exchange, fostering a collaborative learning environment within the team. This knowledge sharing can lead to increased learning opportunities, improved problem-solving capabilities, and enhanced collective intelligence, all of which contribute to elevated project performance.

To effectively leverage cognitive diversity and elevate project performance, virtual teams in Ethiopia should implement strategies that address the challenges and capitalize on the benefits. Research by Zhang et al. (2020) and Smith et al. (2022) provides valuable insights into effective strategies for managing cognitive diversity in virtual teams:

- **Foster open and inclusive communication:** Encourage active listening, respect diverse viewpoints, and establish clear communication channels to bridge potential gaps caused by cultural differences and communication styles.
- **Promote a learning culture:** Create an environment that values continuous learning, encourages sharing of experiences and knowledge, and promotes a growth mindset among team members.
- **Develop team processes and structures:** Design team processes that encourage diverse contributions, promote equal participation, and ensure that different thinking styles are considered during decision-making processes.
- **Provide training and support:** Offer training programs that enhance cross-cultural understanding, communication skills, and collaboration in virtual teams. Provide support and resources to help team members navigate cultural differences effectively.
- **Foster psychological safety:** Create a safe and inclusive virtual work environment where team members feel comfortable expressing their ideas, taking risks, and challenging the status quo. This psychological safety encourages the full utilization of cognitive diversity within the team.

Cognitive diversity in virtual teams has the potential to enhance project performance by bringing together individuals with different thinking and problem-solving styles. While challenges related to communication and cultural differences exist, effective management strategies can maximize the benefits of cognitive diversity. By fostering an inclusive and collaborative work environment and implementing strategies that promote open communication, learning, and psychological safety, virtual teams in Ethiopia can leverage cognitive diversity to achieve improved project performance.

Variable measurement and data collection

To accomplish the research objective of examining the relationship between diversity factors and project performance in virtual teams, a comprehensive questionnaire was developed. The questionnaire included the assessment of four key variables: demographic diversity, functional diversity, cognitive diversity, and project performance. Additionally, the questionnaire sought to gather basic information about the survey respondents, including their job designations, work experience, and educational backgrounds, which provided contextual insights into the study.

The scale used to measure demographic diversity in virtual teams was developed by drawing on established research findings and methodologies from prior studies. This ensured that the scale captured the relevant dimensions of demographic diversity, such as age, gender, and educational backgrounds, aligning with the existing literature on the subject. By incorporating well-founded and validated measures, the questionnaire aimed to capture the diverse demographic characteristics of the virtual teams under investigation accurately.

In the case of functional diversity, the knowledge diversity scale was thoughtfully designed in accordance with the pertinent literature, specifically referring to the work of Zhang and Li (2016). The scale aimed to evaluate the diverse functional backgrounds, areas of expertise, roles, and skill sets present within the virtual teams. It sought to identify the diverse knowledge and perspectives brought by team members from different functional areas, facilitating an understanding of how functional diversity contributes to project outcomes.

Furthermore, the questionnaire included scales to measure conflicts and project performance. The conflicts scale drew from the research work of Chen et al. (2014) and Liang et al. (2012), which provided a comprehensive understanding of conflict dynamics within virtual teams. Additionally, the performance scale utilized relevant literature, specifically the work of Chen (2015), to assess project performance in terms of outcomes, productivity, and overall success.

By utilizing well-established scales and measures derived from the relevant literature, the questionnaire aimed to ensure the robustness and validity of the data collected. The careful design and selection of these scales aimed to capture the complexities and nuances of diversity factors and their impact on project performance in virtual teams, thereby contributing to a comprehensive understanding of the research topic.

Measurement of team diversity in project performance

When assessing team diversity's impact on project performance, we delve into the key variables: demographic diversity, functional diversity, cognitive diversity, and project performance. Each variable encompasses distinct measurement items that provide a comprehensive understanding of how diversity factors into project success.

1. **Demographic diversity** pertains to the composition of teams with respect to individual characteristics such as age, gender, ethnicity, and cultural background etc. By examining these demographic aspects, we gain valuable insights into the team's composition and its potential effects on project performance.
 - a. **Geographic Location:** Virtual teams often consist of members from different geographic locations. The wider the geographical spread, the higher the likelihood of demographic diversity in terms of cultural, social, and economic backgrounds.
 - b. **Language and Communication:** Team members communicating in multiple languages or relying on translation services can indicate diversity, especially when languages other than the team's primary language are used.
 - c. **Nationality and Ethnicity:** The team's composition with members representing various nationalities and ethnicities is a clear indicator of demographic diversity.
 - d. **Gender Diversity:** The representation of different genders within the virtual team, including men, women, and non-binary individuals, demonstrates gender diversity.
 - e. **Age Range:** Diversity in age groups can be an indicator of demographic diversity. A virtual team that includes members from different age ranges, such as younger individuals and older professionals, exhibits age diversity.
 - f. **Cultural Background and Beliefs:** Differences in cultural backgrounds, including traditions, customs, and beliefs, can indicate a diverse virtual team.
2. **Functional diversity** focuses on the variety of skills, roles, expertise, and knowledge that team members bring to the project. It assesses the extent to which team members possess complementary competencies that can enhance project performance.
 - a. **Skills/Roles:** This measurement item considers the distribution of skills and roles within the team, recognizing the significance of a well-balanced team with diverse capabilities.
 - b. **Educational Background:** Variations in educational qualifications, disciplines, and areas of expertise among team members suggest diversity in knowledge and perspectives.
 - c. **Professional Experience:** Diverse levels of professional experience, such as junior, mid-level, and senior team members, can contribute to a well-rounded virtual team.

3. Cognitive diversity refers to the variation in thought processes, problem-solving strategies, and cognitive styles among team members. Unlike demographic and functional diversity, which focus on visible characteristics and skills, cognitive diversity delves into the unique ways individuals think and approach tasks.

- a. **Thinking Styles:** Some team members may be more analytical and data-driven, while others may be more creative and intuitive in their approach to problem-solving. These various thinking styles can lead to diverse perspectives on project challenges. For instance, analytical thinkers may excel at data analysis, while creative thinkers may generate innovative solutions.
- b. **Problem-Solving Approaches:** Some individuals may be risk-averse and prefer cautious decision-making, while others may be more inclined to take calculated risks. This diversity in problem-solving approaches can influence how a team navigates complex project scenarios and adapts to changing circumstances.
- c. **Decision-Making Processes:** Teams with cognitive diversity often engage in richer and more robust decision-making processes. Diverse cognitive perspectives encourage thorough consideration of multiple angles and potential solutions.
- d. **Disability and Accessibility:** Representation of individuals with disabilities within the team or accommodations made for accessibility issues demonstrates inclusivity and diversity.
- e. **Socioeconomic Diversity:** The presence of team members from different socioeconomic backgrounds, with varying income levels and financial circumstances, highlights socioeconomic diversity.

4. Project Performance within virtual teams represents a dynamic interplay between team collaboration and the achievement of project objectives. Virtual teams, composed of geographically dispersed members, introduce unique challenges and opportunities in managing time, quality, and cost dimensions.

- a. **Time**
 - i. **Timeliness in Virtual Collaboration:** Timeliness is crucial in virtual teams, where members may work across different time zones. Effective time management ensures that tasks and communication are synchronized to meet project deadlines.
 - ii. **Schedule Adherence Across Distances:** Virtual teams must closely monitor and adhere to project schedules despite physical separation. Tools and technologies are essential for coordinating activities and maintaining schedule adherence.

b. Quality

- i. Quality of Virtual Collaboration: Maintaining high-quality collaboration within virtual teams is critical. Effective communication, clear expectations, and collaborative tools contribute to the quality dimension.
- ii. Virtual Deliverable Excellence: The quality of project deliverables must meet or exceed expectations, irrespective of team members' geographic locations. Virtual teams must ensure that remote work does not compromise deliverable quality.

c. Cost

- i. Budget Management in Virtual Environments: Managing project costs in virtual teams involves efficient resource allocation and monitoring. Virtual work often requires investments in technology and communication tools, which impact the project's cost.
- ii. Cost-Efficiency in Virtual Work: Maximizing cost efficiency within virtual teams requires optimizing resource utilization and minimizing unnecessary expenses. The challenge lies in achieving cost-effectiveness while maintaining quality and timeliness.

Chapter Three: Methodology

3.1 Research Design

The quantitative research design is a systematic approach to collecting and analyzing data that involves the use of statistical methods to test hypotheses and make predictions about the relationship between variables. In this study, the main objective is to assess the relationship between team diversity and project performance in virtual teams in the case of Internova Travel Group. To achieve this, the study will rely on a survey questionnaire that will be administered to members of virtual teams.

The survey questionnaire is designed to collect information on various aspects of team diversity, such as demographic diversity (age, gender, ethnicity), functional diversity (skills, experience, knowledge), cultural diversity (language, nationality, values), and cognitive diversity, (thinking style, problem-solving skills). Additionally, the questionnaire will collect information on project performance, such as quality of deliverables, timeliness of completion, and customer satisfaction.

Once the data is collected, statistical methods will be used to analyze the data and determine the relationship between team diversity and project performance. The statistical methods used will depend on the specific research questions and hypotheses being tested. Commonly used statistical methods include correlation analysis, regression analysis, and structural equation modeling.

Surveys can also be designed to gather a wide variety of information, from demographic data to attitudes and opinions. This flexibility makes the survey questionnaire method a valuable tool for researchers looking to collect data on a range of topics. Additionally, surveys can be conducted remotely, allowing researchers to collect data from a geographically diverse sample. Overall, the survey questionnaire method is a valuable tool for researchers looking to collect large amounts of data efficiently, quickly, and accurately while maintaining a standardized and anonymous approach.

3.2 Research Approach

The quantitative approach used in this study allows for a systematic and rigorous analysis of the relationship between team diversity and project performance in virtual teams. It provides a structured approach to collecting and analyzing data that allows for the testing of hypotheses and the identification of patterns and trends in the data.

The survey questionnaire method is a widely used research technique that involves collecting data by asking individuals to respond to a series of questions. One of the primary benefits of using this method is that it allows for efficient data collection. Surveys can be distributed to a large number of people, which can yield a large amount of data quickly and efficiently. Additionally, the questions on a survey questionnaire are standardized, meaning that every participant is asked the same set of questions in the same way. This helps to ensure that the data is reliable and can be compared across respondents.

Another benefit of the survey questionnaire method is that it is cost-effective. Surveys can be relatively inexpensive to conduct, especially if they are administered online. Furthermore, participants can remain anonymous when completing a survey questionnaire, which can encourage them to be more honest in their responses. This anonymity can also help to increase the response rate, as participants may feel more comfortable sharing their thoughts and opinions if they do not have to reveal their identity.

This research will use quantitative approach as the data collected will be through survey questionnaire and the research design will be descriptive research design. Descriptive research design is used to describe a particular phenomenon to answer questions related to who, what, when, etc. This type of design involves observing and collecting data on a particular variable or set of variables without manipulating any variables. Descriptive research design can be conducted through surveys, case studies, and observations.

3.2 Population and Sampling Technique

In research, the population refers to the entire group of individuals or objects that meet the criteria for inclusion in the study. In this case, the population for the study is individuals who have experience working in virtual teams. Sampling is the process of selecting a subset of individuals or objects from the population to participate in the study. The sampling technique used in this study is convenience sampling, which is a non-probability sampling method that involves selecting participants who are easily accessible and readily available.

Convenience sampling is often used when researchers have limited time and resources to collect data, as it is a quick and convenient way to obtain a sample. Simply Psychology (2023). However, it is important to note that convenience sampling has its limitations, such as the potential for sample bias and the lack of generalizability to the larger population.

In this study, participants were recruited through online platforms such as Microsoft teams within the organization and professional networks. These platforms provide a convenient way to reach a large number of potential participants quickly and efficiently. However, it is important to acknowledge that this recruitment method may not be representative of the larger population of individuals who have experience working in virtual teams.

Internova Travel Group has employees of approximately 2700 in the organization and around 500 employees in the IT department.

To calculate the sample size we used the sample size formula and determine the values for the margin of error (e), confidence level (z), population size (N), and the estimated proportion (p).

$$n = N * (z^2 * p * (1-p)) / ((e^2) * (N-1) + z^2 * p * (1-p))$$

Where:

- n = sample size
 - N = population size
 - z = the standard normal distribution value for the desired level of confidence (e.g., for a 95% confidence level, z = 1.96)
 - p = estimated proportion of the population with a particular characteristic or outcome (if unknown, use 0.5 for maximum variability)
 - e = the desired level of precision or margin of error, expressed as a proportion
-
- For a margin of error of 5%, we can express it as a proportion by dividing it by 100: e = 0.05.
 - The confidence level of 95% corresponds to a z-score that represents the desired level of confidence. The z-score can be obtained from a standard normal distribution table or calculated using statistical software. For a 95% confidence level, the z-score is approximately 1.96. Thus, z = 1.96.
 - Given the population size of 500 employees: N = 500.
 - The estimated proportion (p) is the anticipated proportion of employees in the population who meet the criteria for inclusion in the study. Since we do not have an estimate for p, we can use 0.45 as a conservative estimate, assuming an equal proportion of employees with the desired experience. Therefore, p = 0.45.

Now, we can substitute these values into the formula to calculate the sample size (n):

$$n = N * (z^2 * p * (1-p)) / ((e^2) * (N-1) + z^2 * p * (1-p))$$

$$500 * (1.96^2 * 0.45 * (1-0.45)) / ((0.05^2) * (500-1) + 1.96^2 * 0.45 * (1-0.45))$$

$$= 500 * (3.8416 * 0.45 * 0.55) / (0.0025 * 499 + 3.8416 * 0.45 * 0.55)$$

$$\approx 199.77$$

Therefore, we would need a sample size of approximately 200 employees from the IT department to estimate the proportion of project managers who have experienced difficulties in managing virtual teams with 95% confidence and a 5% margin of error, given a population size of 500 employees in the IT department.

Overall, while convenience sampling has its limitations, it is a practical and feasible option for this study given the constraints of time and resources.

3.3 Types and Source of Data

The data collection process for this study will involve the acquisition of primary data through the utilization of a survey questionnaire. The questionnaire is thoughtfully constructed to gather essential information pertaining to the participants' demographic characteristics, their prior experience with virtual teams, and their perceptions regarding team diversity and project performance.

To streamline the questionnaire development process, a decision has been made to employ a pre-constructed questionnaire that has been sourced from reputable websites, articles, and journals. Some of the questions on the questionnaire was adopted from the website survey monkey. This pre-existing questionnaire has been designed and validated by other experienced researchers or subject matter experts in the field. Its availability for use in similar studies allows for efficient data collection without the need to create a new questionnaire from scratch or undergo the time-consuming process of validation.

By utilizing a pre-constructed questionnaire, this study can benefit from significant time and resource savings. The efforts that would have otherwise been required to design and validate a new questionnaire can now be allocated to other crucial aspects of the research. Moreover, the use of a validated questionnaire ensures that the questions employed are relevant and reliable, as they have been refined and tested in previous studies. This enhances the credibility of the data collected and facilitates comparisons with findings from other research endeavors that have utilized the same questionnaire.

Overall, the decision to employ a pre-constructed questionnaire in this study offers practical advantages, including time efficiency, resource optimization, and the utilization of a validated tool to gather pertinent data.

3.4 Methods of Data Collection

The data collection process for this study will involve the utilization of an online survey questionnaire. To gather the required information, the questionnaire will be disseminated to the participants using a range of online platforms, including Microsoft Teams, email, and Google Forms. This diverse distribution approach aims to reach a wide pool of potential respondents.

The questionnaire itself will be thoughtfully designed with user-friendliness in mind, ensuring that participants find it easy and convenient to complete. By employing a clear and intuitive format, the questionnaire aims to minimize any confusion or difficulty that participants might encounter while providing their responses.

One crucial aspect of the questionnaire is its anonymous nature, which grants participants the freedom to answer honestly and openly. By ensuring their anonymity, the study aims to create a safe environment that encourages participants to share their genuine experiences and opinions without concerns about potential repercussions or judgment.

Overall, the online survey questionnaire serves as an efficient and accessible tool for collecting data, offering convenience to participants while prioritizing their comfort, ease of use, and confidentiality.

3.5 Method of Data Analysis

The data obtained from the survey questionnaire undergo a rigorous analysis employing various statistical methods. These analytical techniques will enable a comprehensive exploration of the collected data and provide valuable insights into the research objectives.

To begin with, descriptive statistics will be employed to summarize and depict the demographic characteristics of the study participants. Measures such as the mean (average), standard deviation (variability), and frequency distribution (counts of responses) will be utilized to provide a comprehensive overview of the participants' characteristics. These statistics offered a clear understanding of the composition of the sample and allow for comparisons and generalizations.

Moving beyond descriptive statistics, inferential statistics will be employed to investigate the relationship between team diversity and project performance. Correlation analysis is utilized to determine the strength and direction of the relationship between these variables. This analysis provides insights into whether and to what extent team diversity is associated with project performance.

By utilizing these statistical methods, this study aims to uncover significant patterns, relationships, and insights within the collected data. The application of both descriptive and inferential statistics ensures a comprehensive and robust analysis, contributing to a deeper understanding of the dynamics between team diversity and project performance.

Chapter Four: Data Analysis and Interpretation

4.1 Introduction to Data Analysis and Interpretation

Data analysis and interpretation are critical processes in today's data-driven world. With the exponential growth of data, individuals and organizations are seeking valuable insights to make informed decisions and drive innovation. This explores the significance of data analysis and interpretation in uncovering patterns, relationships, and trends to address complex challenges. Furthermore, it examines three hypotheses related to the impact of diversity on project performance in virtual teams: *H1: How Demographic Differences Impact Virtual Team Performance*; *H2: Optimizing Virtual Team Performance Through Functional Diversity*; *H3: Elevating Project Performance through Cognitive Diversity in Virtual Teams*.

Data analysis is a systematic approach that involves examining data to extract meaningful insights. It encompasses various techniques, such as statistical analysis and machine learning algorithms, enabling individuals to gain a deeper understanding of underlying phenomena. Effective interpretation of data goes beyond analysis, requiring critical thinking skills to draw meaningful conclusions and make informed decisions based on evidence.

In the context of virtual teams, which operate remotely and often consist of members from diverse backgrounds, the impact of diversity on project performance becomes a crucial area of study. Hypothesis one suggests that demographic diversity in virtual teams hinders project performance. This hypothesis raises questions about how demographic factors, such as age, gender, and cultural background, influence team dynamics and ultimately impact project outcomes.

Contrarily, hypothesis two proposes that functional diversity in virtual teams enhances project performance. Functional diversity refers to the variety of skills, expertise, and roles represented within a team. This hypothesis suggests that teams with diverse functional backgrounds may benefit from a broader range of perspectives and problem-solving approaches, leading to improved project performance.

Lastly, hypothesis three suggests that cognitive diversity in virtual teams elevates project performance. Cognitive diversity refers to differences in how individuals perceive, process, and interpret information. This hypothesis explores the notion that diverse cognitive styles, such as analytical thinking, creativity, and problem-solving abilities, can lead to more innovative and effective outcomes within virtual teams.

By analyzing and interpreting data related to these hypotheses, we can gain valuable insights into the impact of diversity on project performance in virtual teams. This knowledge can inform strategies for building and managing diverse teams, allowing organizations to leverage the strengths of their members and optimize project outcomes in virtual settings.

4.2 Descriptive statistics

Descriptive analysis, also known as descriptive statistics, is a branch of statistical analysis that focuses on summarizing and describing the main characteristics of a dataset or sample. It involves organizing, presenting, and analyzing data in a way that allows for a comprehensive understanding of its key features and patterns.

The primary goal of descriptive analysis is to provide a concise and meaningful summary of the data, enabling researchers, analysts, or decision-makers to gain insights, draw conclusions, and make informed decisions. This analysis is typically the first step in exploring a dataset and often serves as a foundation for more advanced statistical techniques.

Descriptive analysis encompasses a variety of statistical measures and techniques, including measures of central tendency (such as mean, median, and mode), measures of dispersion or variability (such as range, standard deviation, and variance), measures of shape or distribution (such as skewness and kurtosis), and graphical representations (such as histograms, bar charts, and pie charts).

By examining these descriptive statistics and visualizations, analysts can gain insights into the overall pattern, spread, and characteristics of the data. This can help identify outliers, detect trends, assess the distributional properties, explore relationships between variables, and highlight important features or observations within the dataset.

Descriptive analysis can provide valuable insights into the characteristics and patterns of the data related to team diversity and project management. Studying the impact of virtual team diversity on project management involves examining and summarizing relevant data to gain a comprehensive understanding of the characteristics and patterns of both the team diversity and project management variables.

The analysis involves identifying and quantifying various dimensions of team diversity, such as demographic factors (e.g., age, gender, nationality), functional expertise (e.g., technical skills, domain knowledge), cognitive diversity, and project performance. Descriptive statistics can be used to summarize these diversity dimensions, providing information on the distribution of diversity within the virtual team.

Descriptive statistics and visualizations can help identify patterns or trends in the data. For instance, measures of central tendency (such as mean or median) can provide an understanding of the typical level of team diversity or project performance. Measures of dispersion (such as range or standard deviation) can indicate the degree of variability in these variables. Graphical representations, such as bar charts or histograms, can visually illustrate the distribution of team diversity or project management variables, allowing for a quick assessment of any skewness, gaps, or outliers that may exist.

By conducting descriptive analysis, researchers or project managers can gain a comprehensive overview of the virtual team's diversity and its potential impact on project management. This analysis can serve as a foundation for further investigations or more advanced statistical techniques to explore relationships, assess causality, or make informed decisions regarding virtual team composition and project management strategies.

4.2.1 Mean

The mean, also known as the average, is a measure of central tendency in statistics. It is calculated by summing up all the values in a dataset and dividing the sum by the total number of observations. The mean represents the "typical" or "average" value of a variable and provides a measure of the central location of the data.

Mathematically, the mean (μ) can be expressed as:

$$\mu = (x_1 + x_2 + x_3 + \dots + x_n) / n,$$

where $x_1, x_2, x_3, \dots, x_n$ are the individual values in the dataset, and n is the total number of observations.

The mean is widely used in data analysis and provides a useful summary of the data, allowing for comparisons and understanding of the average value of a variable.

4.2.2 Standard deviation

The standard deviation is a measure of the dispersion, or variability, of a dataset. It quantifies the average amount by which individual data points deviate from the mean. A larger standard deviation indicates greater variability, while a smaller standard deviation suggests that the data points are closer to the mean.

The standard deviation (σ) is calculated by taking the square root of the variance, which is the average of the squared differences between each data point and the mean. Mathematically, it can be expressed as:

$$\sigma = \sqrt{(\sum(x_i - \mu)^2 / n)},$$

where x_i represents each individual value in the dataset, μ is the mean of the dataset, and n is the total number of observations.

The standard deviation provides valuable information about the spread or distribution of the data. It is frequently used in statistical analysis to assess the consistency or variability of a variable and to compare different datasets.

On figure two we will see the analysis using SPSS, a software program used for statistical analysis. It includes minimum value, maximum value, mean and standard deviation for each of our variables.

Descriptives

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
Demographic_Diversity	200	1.00	5.00	4.1450	.98429
Functional_Diversity	200	1.00	5.00	4.4550	.88991
→ Cognitive_Diversity	200	1.00	5.00	4.2800	.95717
Time	200	1.00	5.00	4.2350	.92957
Cost	200	1.00	5.00	4.1900	.89885
Quality	200	1.00	5.00	4.2000	.89105
Valid N (listwise)	200				

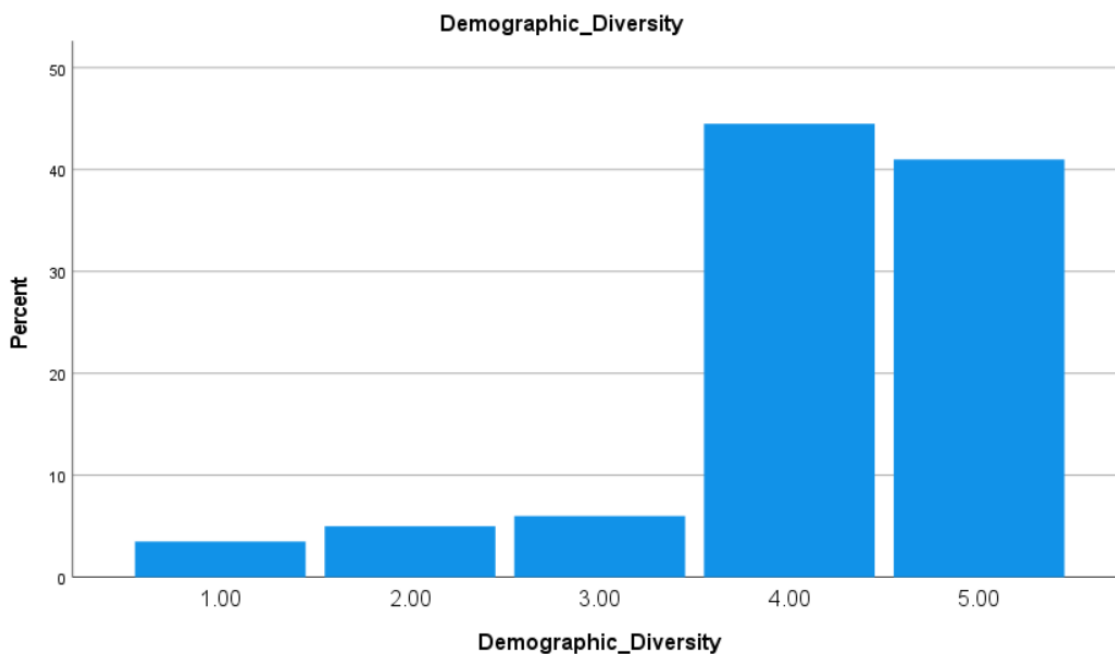
Figure 2: Analysis using descriptive statistics

The analysis presents descriptive statistics for six variables: DemographicDiversity, FunctionalDiversity, CognitiveDiversity, Time, Cost, and Quality. Each variable represents a different aspect related to virtual team diversity and project management. The statistics include the number of observations (N), the minimum value, the maximum value, the mean (average), and the standard deviation (Std. Deviation) for each variable.

1. Demographic Diversity

- N = 200: This variable consists of 200 observations.
- Minimum = 1.00, Maximum = 5.00: The range of values for demographic diversity ranges from 1.00 to 5.00.
- Mean = 4.1450: The average level of demographic diversity is 4.1450.
- Std. Deviation = 0.98429: The standard deviation indicates that the data points are dispersed around the mean by approximately 0.98429 units on average. A lower standard deviation suggests less variability in the data.

Demographic diversity refers to the range of differences among team members based on demographic factors such as age, gender, and nationality. The given statistics indicate that there are 200 observations (team samples) included in the analysis. The minimum value of 1.00 suggests the presence of teams with low demographic diversity, while the maximum value of 5.00 indicates teams with high demographic diversity. The average level of demographic diversity is 4.1450, suggesting that, on average, the teams exhibit a relatively high level of diversity. The standard deviation of 0.98429 indicates that the observed values are dispersed around the mean by approximately 0.98429 units on average, suggesting a moderate amount of variability in the demographic diversity ratings across teams.



Where the scale 1 to 5 represents the following.

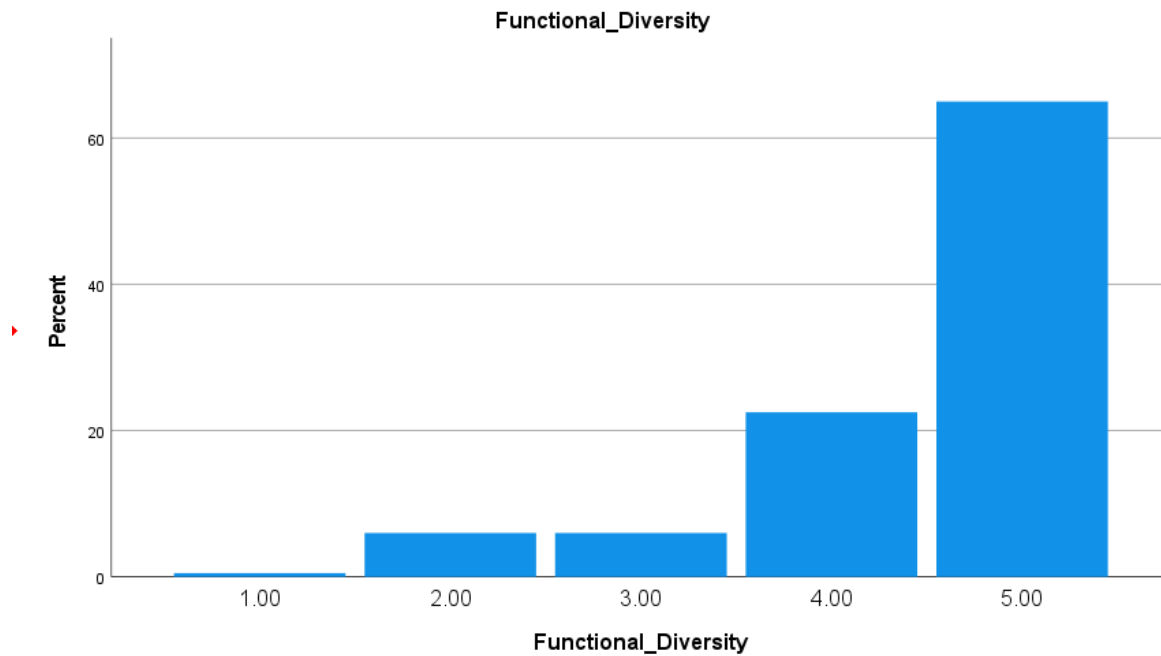
- 1 - very low diversity
- 2 - low diversity
- 3 - Neutral
- 4 - high diversity
- 5 - very high diversity

Figure 3: Bar chart for demographic diversity

2. Functional Diversity

- N = 200: This variable also consists of 200 observations.
- Minimum = 1.00, Maximum = 5.00: The range of values for functional diversity ranges from 1.00 to 5.00.
- Mean = 4.4550: The average level of functional diversity is 4.4550.
- Std. Deviation = 0.88991: The standard deviation is relatively low (0.88991), indicating that the data points are closer to the mean with less variability.

Functional diversity refers to the variation in expertise and skills among team members, focusing on their functional or professional backgrounds. The descriptive statistics reveal that there are 200 observations included in the analysis. The range of functional diversity ratings spans from 1.00 to 5.00. A minimum value of 1.00 suggests teams with low functional diversity, while a maximum value of 5.00 indicates teams with high functional diversity. The mean value of 4.4550 suggests that, on average, the teams exhibit a relatively high level of functional diversity. The standard deviation of 0.88991 indicates a relatively low amount of variability in the functional diversity ratings across teams, suggesting that the ratings are clustered closer to the mean.



Where the scale 1 to 5 represents the following.

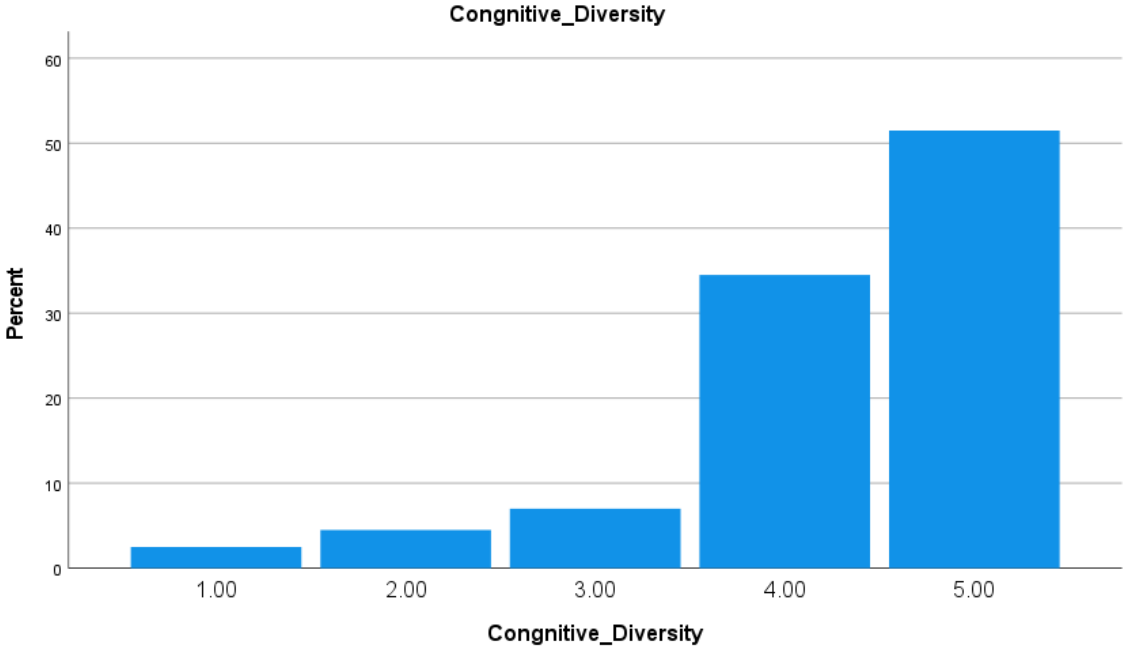
- 1 - very low diversity
- 2 - low diversity
- 3 - Neutral
- 4 - high diversity
- 5 - very high diversity

Figure 4: Bar chart for functional diversity

3. Cognitive Diversity

- N = 200: This variable has 200 observations as well.
- Minimum = 1.00, Maximum = 5.00: The range of values for cognitive diversity is between 1.00 and 5.00.
- Mean = 4.2800: The average level of cognitive diversity is 4.2800.
- Std. Deviation = 0.95717: The standard deviation suggests that the data points have a moderate amount of dispersion, with an average deviation of approximately 0.95717 units from the mean.

Cognitive diversity refers to the range of differences in knowledge, perspectives, and thinking styles among team members. The statistics indicate that there are 200 observations included in the analysis. The minimum and maximum values of 1.00 and 5.00, respectively, represent the range of cognitive diversity ratings. The mean value of 4.2800 suggests that, on average, the teams exhibit a relatively high level of cognitive diversity. The standard deviation of 0.95717 indicates a moderate amount of dispersion in the cognitive diversity ratings across teams, indicating some variability in the observations.



Where the scale 1 to 5 represents the following.

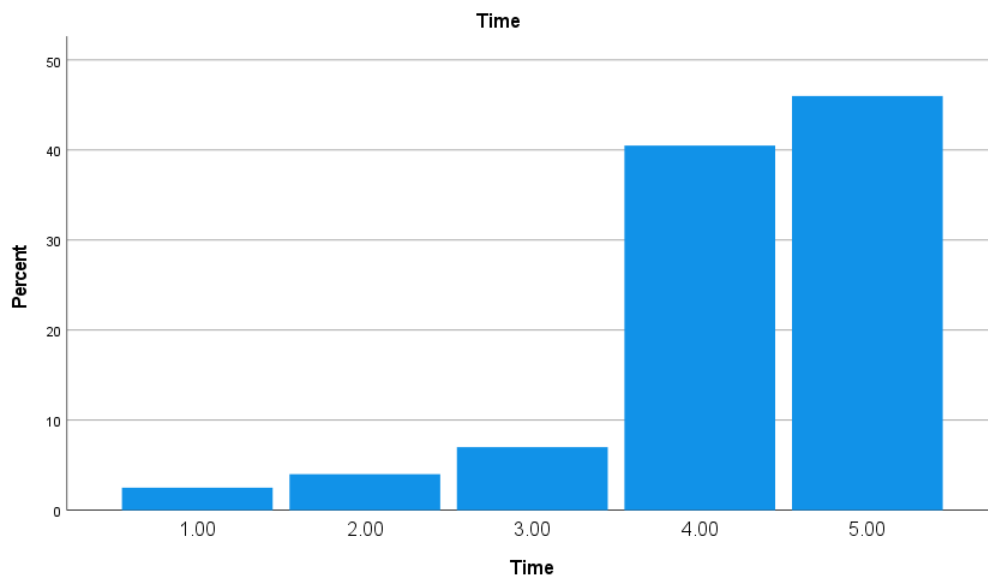
- 1 - very low diversity
- 2 - low diversity
- 3 - Neutral
- 4 - high diversity
- 5 - very high diversity

Figure 5: Bar chart for cognitive diversity

4. Time

- N = 200: This variable consists of 200 observations.
- Minimum = 1.00, Maximum = 5.00: The time variable ranges from 1.00 to 5.00.
- Mean = 4.2350: The average rating for time management is 4.2350.
- Std. Deviation = 0.92957: The standard deviation indicates a moderate level of dispersion in the data points, with an average deviation of approximately 0.92957 units from the mean.

The "Time" variable pertains to the effectiveness of time management within virtual teams. The analysis includes 200 observations. The minimum and maximum values of 1.00 and 5.00, respectively, suggest a range of ratings for time management. The mean value of 4.2350 indicates that, on average, the teams exhibit a relatively high level of time management effectiveness. The standard deviation of 0.92957 suggests a moderate amount of dispersion in the time management ratings across teams, implying some variability in the observations.



Where the scale 1 to 5 represents the following.

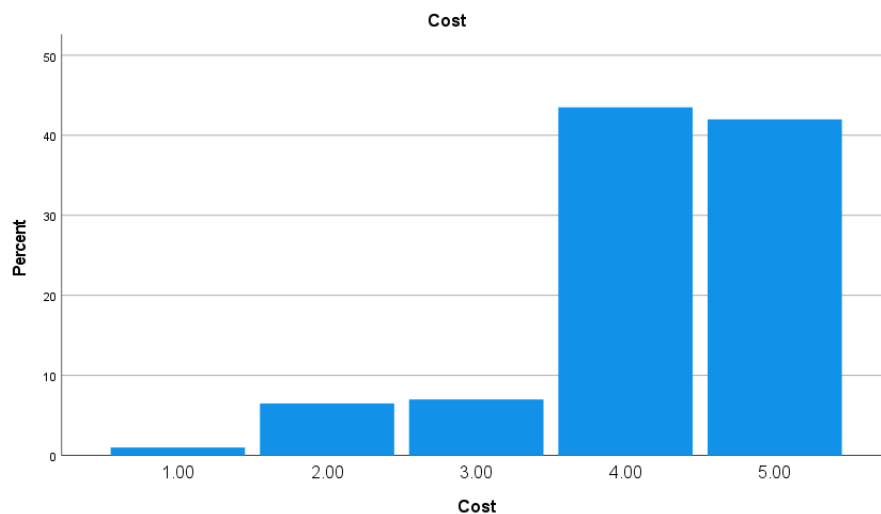
- 1 - very low time
- 2 - low time
- 3 - Neutral
- 4 - high time
- 5 - very high time

Figure 6: Bar chart for time

5. Cost

- N = 200: This variable also has 200 observations.
- Minimum = 1.00, Maximum = 5.00: The cost variable ranges from 1.00 to 5.00.
- Mean = 4.1900: The average rating for cost management is 4.1900.
- Std. Deviation = 0.89885: The standard deviation suggests a moderate level of dispersion in the data points, with an average deviation of approximately 0.89885 units from the mean.

The "Cost" variable refers to the efficiency of cost management within virtual teams. The analysis includes 200 observations. The minimum and maximum values of 1.00 and 5.00, respectively, represent the range of ratings for cost management. The mean value of 4.1900 suggests that, on average, the teams exhibit a relatively high level of cost management efficiency. The standard deviation of 0.89885 indicates a moderate amount of dispersion in the cost management ratings across teams, implying some variability in the observations.



Where the scale 1 to 5 represents the following.

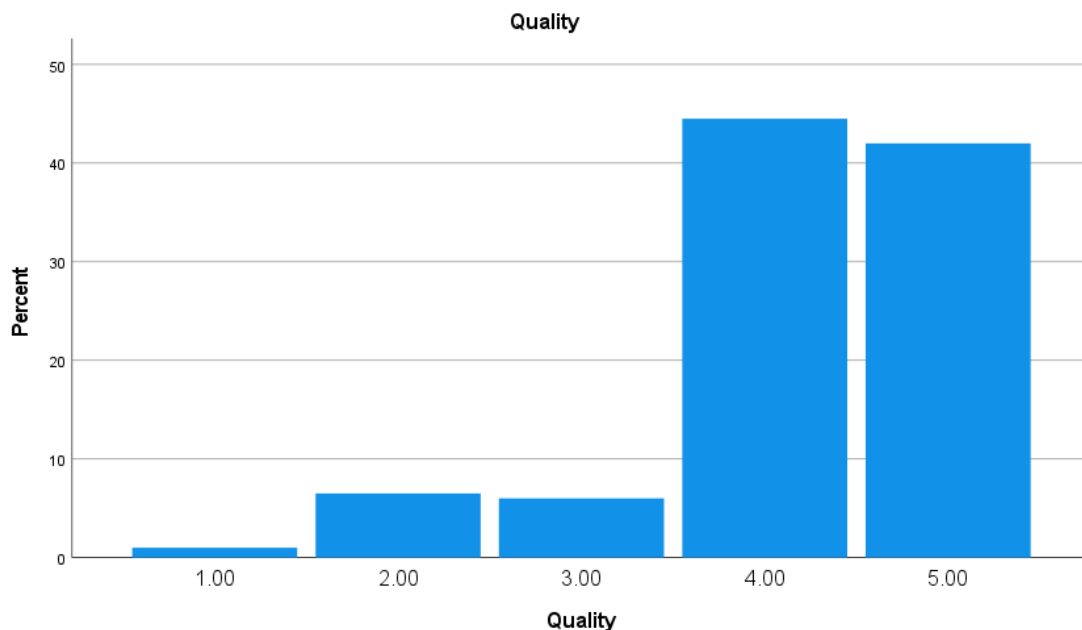
- 1 - very low cost
- 2 - low cost
- 3 - Neutral
- 4 - high cost
- 5 - very high cost

Figure 7: Bar chart for cost

6. Quality

- N = 200: This variable consists of 200 observations.
- Minimum = 1.00, Maximum = 5.00: The quality variable ranges from 1.00 to 5.00.
- Mean = 4.2000: The average rating

The "Quality" variable represents the level of quality management within virtual teams. The statistics show 200 observations included in the analysis. The minimum and maximum values of 1.00 and 5.00, respectively, indicate the range of ratings for quality management. The mean value of 4.2000 suggests that, on average, the teams exhibit a relatively high level of quality management. The standard deviation of 0.89105 suggests a moderate amount of dispersion in the quality management ratings across teams, indicating some variability in the observations.



Where the scale 1 to 5 represents the following.

- 1 - very low quality
- 2 - low quality
- 3 - Neutral
- 4 - high quality
- 5 - very high quality

Figure 8: Bar chart for quality

4.3 Inferential statistics

Inferential statistics is a branch of statistics that involves making inferences, predictions, or generalizations about a population based on sample data. It allows us to draw conclusions about the population by using statistical techniques to analyze and interpret the sample data.

Correlation analysis, as a part of inferential statistics, focuses on examining the relationship between variables. It quantifies the strength and direction of the relationship using correlation coefficients. Correlation analysis helps determine whether variables are positively, negatively, or not related to each other. By incorporating correlation analysis into inferential statistics, we can make inferences about the population based on the observed correlations in the sample data. These inferences can provide insights into the relationships between variables and guide decision-making processes.

By using correlation analysis, we can gain a comprehensive understanding of how virtual team diversity factors relate to project management outcomes. Correlation analysis provides an initial exploration of the associations between variables. These statistical techniques play a crucial role in uncovering the relationships between virtual team diversity and project management, thereby providing valuable insights for effective team composition and project planning strategies.

4.3.1 Correlation analysis

Correlation analysis is a statistical technique used to measure the strength and direction of the relationship between two or more variables. It provides insights into how changes in one variable are associated with changes in another variable. In correlation analysis, the focus is on understanding the degree to which variables move together or in opposite directions.

The correlation coefficient, often denoted as "r," quantifies the strength and direction of the relationship between variables. The value of "r" ranges from -1 to 1. A positive value indicates a positive correlation, meaning that as one variable increases, the other variable tends to increase as well. A negative value indicates a negative correlation, implying that as one variable increases, the other variable tends to decrease. A correlation value of 0 indicates no linear relationship between the variables.

It is important to note that correlation measures the strength and direction of a linear relationship between variables. Nonlinear relationships may exist between variables that are not captured by correlation analysis. Additionally, correlation does not imply causation. Even if two variables are strongly correlated, it does not necessarily mean that changes in one variable cause changes in the other variable. Other factors and variables may contribute to the observed relationship.

Correlation analysis is useful in various fields, including social sciences, economics, and natural sciences. In the context of the impact of virtual team diversity on project management, correlation analysis can help examine the relationship between variables such as demographic diversity, functional diversity, cognitive diversity, and project management outcomes (e.g., time, cost, quality). By calculating correlation coefficients, we can determine the degree and significance of these relationships.

Interpreting correlation coefficients involves considering their magnitude and statistical significance. A correlation coefficient close to 1 or -1 indicates a strong linear relationship, while a coefficient close to 0 suggests a weak or no relationship. Statistical significance is determined by p-values. If the p-value is below a predetermined threshold (e.g., 0.05), the correlation is considered statistically significant.

		Demographic Diversity	Time	Cost	Quality
Demographic Diversity	Person Correlation	1	- 0.109	- 0.156*	0.047
	Sig. (2-tailed)		0.125	0.027	0.509
	N	200	200	200	200
Time	Person Correlation	- 0.109	1	0.030	0.119
	Sig. (2-tailed)	0.125		0.668	0.094
	N	200	200	200	200
Cost	Person Correlation	- 0.156*	0.030	1	0.197**
	Sig. (2-tailed)	0.027	0.668		0.005
	N	200	200	200	200
Quality	Person Correlation	0.047	0.119	0.197**	1
	Sig. (2-tailed)	0.509	0.094	0.005	
	N	200	200	200	200

* - Correlation is significant at the 0.05 level (2-tailed).

** - Correlation is significant at the 0.01 level (2-tailed).

Table 1: Correlation analysis between demographic diversity, time, cost, and quality

1. Demographic Diversity

The correlation coefficient between DemographicDiversity and Time is -0.109. Although this correlation is not statistically significant, it suggests a weak negative relationship between demographic diversity and time management in project management. This implies that as the level of demographic diversity in virtual teams increases, there might be a slight tendency for time management to be slightly less efficient or effective. However, the correlation is weak and not statistically significant, indicating that other factors or variables may have a stronger influence on time management in project management.

The correlation coefficient between DemographicDiversity and Cost is 0.156. This correlation is statistically significant, suggesting a weak positive relationship between demographic diversity and project costs. It implies that as the level of demographic diversity in virtual teams increases, there may be a slight tendency for project costs to also increase.

The correlation coefficient between DemographicDiversity and Quality is 0.047. This correlation is not statistically significant, indicating that there is no clear linear relationship between demographic diversity and quality management in project management. It suggests that demographic diversity alone may not significantly impact the quality outcomes of projects. Other factors, such as team dynamics, communication, and task allocation, play a more significant role in determining project quality.

2. Time

The correlation coefficient between Time and Cost is 0.030. This correlation is not statistically significant, indicating that there is no strong relationship between time management and cost control in project management. It suggests that the efficiency or effectiveness of time management does not have a substantial impact on the control of project costs.

The correlation coefficient between Time and Quality is 0.119. Although this correlation is not statistically significant at the 0.05 level, it suggests a weak positive relationship between time management and project quality. It implies that better time management practices may be associated with slightly higher project quality outcomes. However, further analysis and consideration of additional variables are necessary to fully understand the relationship between time management and project quality.

3. Cost

The correlation coefficient between Cost and Quality is 0.197. This correlation is statistically significant at the 0.01 level, indicating a moderate positive relationship between cost control and quality management in project management. It suggests that as project costs are better controlled and managed, there is a tendency for higher project quality outcomes. This finding highlights the importance of effective cost management practices in achieving better project quality.

In conclusion, the correlation analysis provides insights into the relationships between demographic diversity, time management, cost control, and quality management in project management. However, it is important to consider that correlation does not imply connection, and other factors or variables not included in the analysis may influence these relationships.

Chapter Five: Summary, Conclusion, and Recommendations

This research paper explores the impact of team diversity on project performance in virtual teams. The findings highlight the significant role of effective communication, conflict management, trust, and knowledge sharing. The conclusion emphasizes the importance of embracing team diversity and offers practical recommendations, such as cross-cultural training and fostering a culture of trust. Future research could address limitations and explore broader industry representation, additional dimensions of diversity, longitudinal studies, and leadership strategies. Overall, this research provides valuable insights and guidance for optimizing project performance in virtual teams through effective management of team diversity.

5.1 Summary of findings

The study assesses the relationship between team diversity and project performance in virtual teams in the case of Internova Travel Group. By adopting a quantitative approach and utilizing survey questionnaires, I've gathered data to examine the relationship between team diversity and project performance.

The findings of this research indicate that when teams are composed of members with diverse backgrounds, experiences, and skills, it positively affects the outcomes of their projects. This suggests that diversity brings unique perspectives, knowledge, and expertise to the team, which can contribute to improved performance.

Furthermore, the study identified several crucial factors that mediate the relationship between team diversity and project performance. Effective communication plays a vital role in ensuring that diverse team members understand and collaborate with each other effectively. Conflict management skills are also essential in handling disagreements and differences that may arise within diverse teams.

Moreover, trust-building initiatives are crucial for establishing a positive team climate and promoting cooperation among diverse team members. When team members trust each other, they are more likely to share information, take risks, and collaborate effectively. Additionally, knowledge sharing was found to be a significant mediator in the relationship between team diversity and project performance. Diverse teams bring a wide range of knowledge and expertise, and when team members actively share their knowledge with each other, it enhances the team's overall performance.

Overall, the study concludes that managing team diversity effectively is essential for organizations to enhance team effectiveness and achieve better project results in virtual teams. By promoting effective communication, conflict management, trust-building initiatives, and knowledge sharing practices, organizations can leverage the benefits of team diversity and improve project outcomes. The findings of this research highlight the importance of team diversity and the mechanisms through which it impacts project performance in virtual teams. It provides a clear understanding of the study's main discoveries and serves as a foundation for the subsequent sections of the conclusion, recommendations, and areas of further research.

5.2 Conclusion

The study findings provide evidence that diverse teams, when effectively managed, have a positive impact on project outcomes. This highlights the valuable role that team diversity plays in achieving success in virtual team settings. The research underscores the need for organizations, particularly those operating in multinational contexts, to recognize and embrace team diversity as a valuable asset. By acknowledging the diverse perspectives, experiences, and skills that team members bring, organizations can harness the potential of diversity to drive superior project performance.

To maximize the benefits of team diversity, organizations should focus on implementing strategies and practices that promote effective communication. Clear and open lines of communication enable diverse team members to exchange ideas, share information, and collaborate efficiently, leading to improved project outcomes. In addition, organizations should invest in conflict resolution strategies to address any disagreements or differences that may arise within diverse teams. By creating a supportive environment that encourages open dialogue and respect for differing opinions, organizations can effectively manage conflicts and foster a more harmonious and productive team dynamic.

Building trust among team members is another crucial aspect highlighted in this research. Trust-building initiatives and practices are essential for establishing a positive team climate where individuals feel safe and valued. When team members trust each other, they are more likely to collaborate, take risks, and contribute their diverse perspectives, ultimately enhancing project performance.

Furthermore, the study emphasizes the importance of knowledge sharing platforms and practices. Organizations should provide opportunities for team members to exchange their unique knowledge and expertise. By facilitating knowledge sharing, organizations can tap into the collective intelligence of diverse teams, leading to innovative solutions, improved decision-making, and overall project success.

In conclusion, this research underlines the significance of team diversity in virtual teams and its positive impact on project performance. It urges organizations to embrace and effectively manage team diversity by promoting effective communication, conflict resolution strategies, trust-building initiatives, and knowledge sharing platforms. By doing so, organizations can leverage the strengths of diverse teams and achieve superior project performance in virtual team settings.

5.3 Recommendations

Based on the study's findings, several recommendations can be made. Firstly, organizations should invest in training programs that enhance cross-cultural communication and conflict management skills among virtual team members. This will enable team members to navigate the challenges associated with diverse perspectives and foster better collaboration. Secondly, creating a culture of trust and psychological safety within virtual teams is essential. Organizations should establish mechanisms to build trust and encourage open and inclusive discussions. Finally, implementing knowledge sharing platforms and practices can facilitate the exchange of diverse knowledge and expertise among team members, leading to improved project outcomes.

1. Firstly, organizations should invest in training programs that enhance cross-cultural communication and conflict management skills among virtual team members. Given the diverse backgrounds and perspectives within virtual teams, it is essential to equip team members with the necessary skills to navigate cultural differences and effectively communicate across cultural boundaries. Training programs can focus on building cultural awareness, promoting empathy, and developing strategies for effective cross-cultural communication. Additionally, conflict management skills training can help team members address and resolve conflicts that may arise from diverse viewpoints, fostering better collaboration and understanding.
2. Creating a culture of trust and psychological safety within virtual teams is crucial. Organizations should establish mechanisms to build trust and encourage open and inclusive discussions. This can be achieved by promoting transparent communication, providing opportunities for team members to express their opinions without fear of judgment, and recognizing and valuing the contributions of all team members. Leaders should lead by example, demonstrating trustworthiness and fostering a supportive environment that encourages psychological safety. By cultivating trust within virtual teams, organizations can foster stronger relationships, enhance cooperation, and ultimately improve project outcomes.

3. Implementing knowledge sharing platforms and practices can significantly benefit virtual teams. Organizations should provide dedicated platforms or tools that facilitate the exchange of diverse knowledge and expertise among team members. These platforms can include virtual collaboration spaces, document sharing platforms, or online discussion forums. Encouraging team members to actively share their knowledge, insights, and experiences can enhance the collective intelligence of the team. By fostering a culture of knowledge sharing, organizations can leverage the diverse expertise within the team and promote innovation, problem-solving, and improved decision-making, leading to better project outcomes.

The recommendations are focused on enhancing cross-cultural communication and conflict management skills, fostering trust and psychological safety, and facilitating knowledge sharing within virtual teams. By implementing these recommendations, organizations can effectively manage team diversity and leverage its potential to drive superior project performance in virtual team settings.

5.4 Research limitations and areas of further research

While this study contributes valuable insights into the impact of team diversity on project performance in virtual teams, it is important to acknowledge its limitations. Future research should aim to include diverse organizations and industries, explore other dimensions of diversity, conduct longitudinal studies, and investigate the role of leadership styles and strategies. By addressing these limitations and conducting further research, a more comprehensive understanding of team diversity and its implications for project performance in virtual teams can be achieved.

- One limitation of this study is the reliance on a single organization and specific industries. This may limit the generalizability of the findings. To enhance the external validity of future research, it would be beneficial to include a broader range of organizations and industries. This would allow for a more comprehensive understanding of how team diversity impacts project performance across different contexts.
- The research focused primarily on demographic and functional dimensions of diversity. However, there are other dimensions of diversity that could be explored in future studies. For example, cultural diversity, including factors such as nationality or ethnic background, could be considered. Additionally, examining the influence of personality traits or cognitive diversity on project performance in virtual teams could provide valuable insights into the dynamics of diverse teams.

- Conducting longitudinal studies would be valuable to understand the long-term effects of team diversity on project performance. This would involve tracking the performance of virtual teams over an extended period to observe how team diversity influences outcomes over time. Longitudinal research could provide insights into the sustainability and stability of the impact of team diversity on project performance.
- Investigating the role of leadership styles and strategies in managing diverse virtual teams would offer deeper insights into effective diversity management. Examining how different leadership approaches impact team dynamics, communication, conflict resolution, and trust-building within diverse virtual teams could provide valuable guidance for leaders and organizations seeking to effectively manage team diversity.

In conclusion, this research paper highlights the importance of team diversity in virtual teams and its impact on project performance. By recognizing and effectively managing team diversity, organizations can harness its potential to drive success in virtual team projects. The recommendations provided offer practical strategies for organizations to optimize the performance of their diverse virtual teams. However, further research is warranted to expand the understanding of team diversity and its implications in different contexts, industries, and dimensions.

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Appendix

Appendix A

A questionnaire that aims to gather insights on how virtual teams affect various aspects of project management and overall project success.

The impact of team diversity on project performance: the case of virtual team

The workplace today is increasingly virtual. Workers are scattered across cultures, geographies, organizations and time zones. Delivering consistent quality across with all these factors requires skillful navigation in the virtual world.

Please take a moment to share your best practices for bridging the virtual gap by taking this short questioner. This questionnaire is a part of a research in Addis Ababa University, School of commerce and is completely anonymous.

1. What is your role in a virtual team? (*Please select one*)

- Member
- Manager
- Manager of Manager (s)
- I have not been a member of virtual team

2. Please select age range (*Please select one*)

- 25-35
- 36-45
- 46-55
- above 55

3. Please select gender (*Please select one*)

- Female
- Male

4. Please mark X that apply for the below questions.

No	Questions	Strongly agree	Agree	Neutral	Don't Agree	Strongly Don't Agree
1	I feel that it is less costly to work as virtual team on projects					
2	Virtual team employees are not limited to one region and are dispersed in different location					
3	I think virtual team and remote work reduces office politics					
4	I think we have clear communication within the team					
5	I think to have multicultural team is an advantage					
6	We have good team relationship despite the culture difference, distance, and location					
7	I believe everybody works towards common goals and are willingly to make sacrifices for the good outcome of the project					
8	The team members share their views within the team freely					
9	I feel there is integrity and honesty between teams of project					
10	The team members agree on what is important for the project					
11	The team members have different professional knowledge and experience					
12	I feel that remote working helps in flexible scheduling for better work life balance					
13	The believe educational background and skill sets are diverse within virtual team					
14	The thinking of how to finish the task is different among project teams					
15	It easy to execute the project as per the schedule within the virtual teams					
16	The diversified virtual team has qualified project acceptance and delivery					

5. How does the following impact the effectiveness of the virtual teams on the success of projects?

No	Question	Increase effectiveness	No noticeable impact	Slows effectiveness	Impedes effectiveness	N/A
1	Language issues					
2	Cultural differences					
3	Workload distribution					
4	Conflict resolution					
5	Idea generation					
6	Communication					
7	Sharing lesson learned					
8	Training					
9	Differing working hours					
10	Team trust					
11	Project identification					
12	Meetings with stakeholders					
13	Conflict resolution					
14	Requirement definition					
15	Variances in project delivery					
16	Diversity on skills and expertise					